



THE UNIVERSITY OF
SYDNEY

ECON1002: INTRODUCTORY MACROECONOMICS

LECTURE 12: INTERNATIONAL TRADE AND EXCHANGE RATES

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Chapter 14

International Trade

Learning Objectives

- 14.1 In what sense does free trade contribute to the welfare of a country's citizens?
- 14.2 Under what circumstances will a country have a comparative advantage in the production of a commodity?
- 14.3 Under what circumstances will an economy be a net importer of a good or service?
- 14.4 Under what circumstances will an economy be a net exporter of a good or service?
- 14.5 Which groups in society win and which groups lose when an economy moves to free trade?
- 14.6 What are the effects of a tariff on (a) consumers, (b) producers and (c) the government?
- 14.7 What are the effects of a quota on (a) consumers, (b) producers and (c) the government?
- 14.8 In what sense is protectionism inefficient?
- 14.9 What are the main arguments in the debate about whether free trade has harmful environmental effects? What does the empirical evidence suggest?

Free trade has been getting a lot of press lately.

THE AUSTRALIAN
NEWSPAPER OF THE YEAR

“Donald Trump set to negotiate new trade deal with Australia” - 30 Jan, 2017

“Voting for Brexit hasn’t saved us from secretive trade deals” - 5 Feb, 2017

the guardian

FINANCIAL TIMES

“Marine Le Pen promises crackdown on immigration and globalisation” – 5 Feb, 2017

“Trump’s Trade War May Have Already Began”
– 30 Jan, 2017

The New York Times

So, is free trade good or bad?



This Lecture

Chapter 14:
International Trade

1. A story about a guy and a girl
2. All goods: The Production Possibilities Curve
3. Individual goods: Supply and Demand
4. Protectionism: tariffs and quotas
5. Nominal exchange rates
6. Real exchange rates

Chapter 15:
Exchange Rates

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Let's start with a household analogy, the Smiths. Jack Smith is an engineer, and Jill Smith is a surgeon



Jack and Jill Smith

Jack and Jill have a baby, and Jill stays at home to take care of her



Jack and Jill and Baby Smith

Soon Jill realizes that she can pay a nanny to look after the baby, and earn more as a surgeon. Both Jill and the nanny are better off.



Nanny and Baby Smith

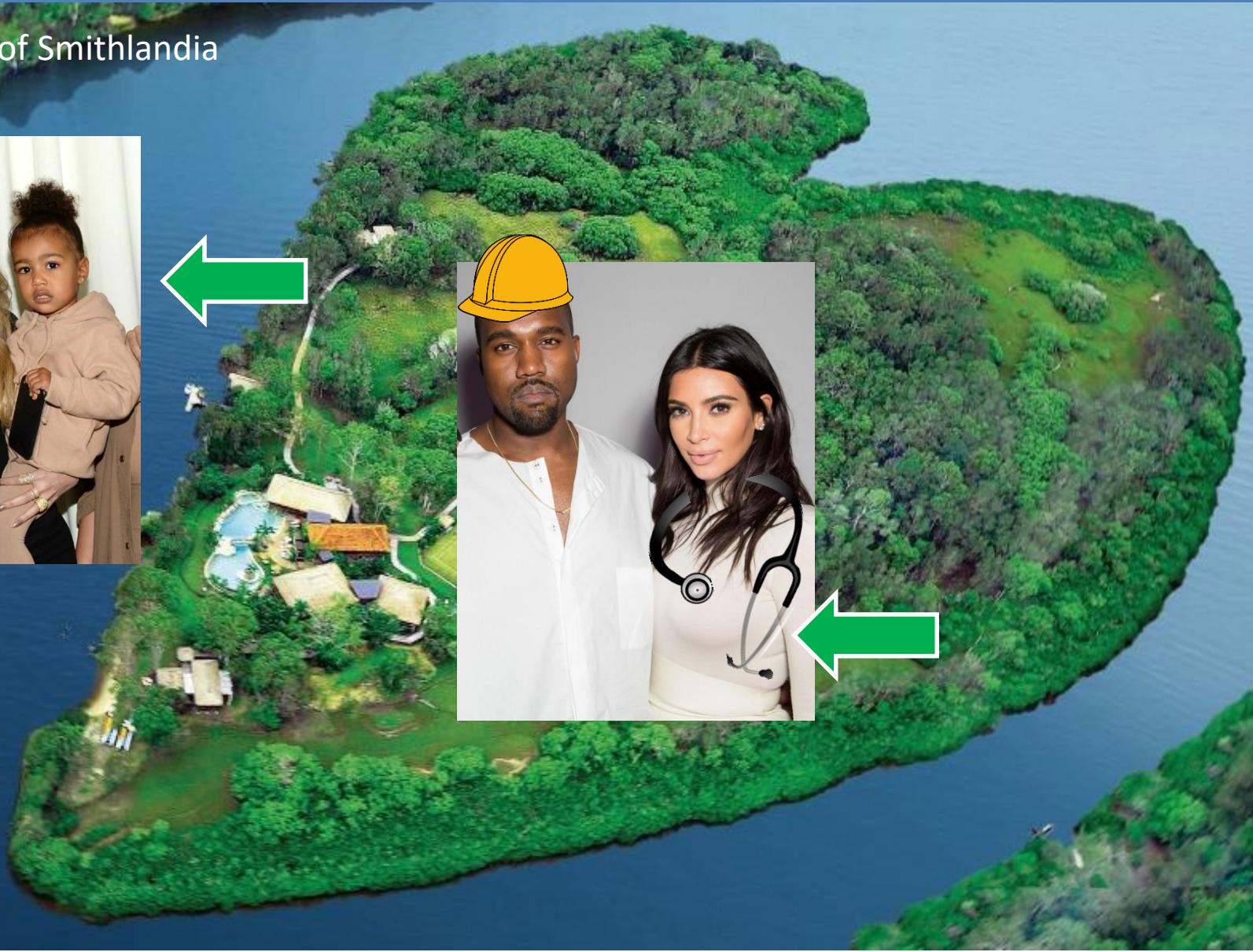
Now imagine that the Smith household is a country, Smithlandia.

The Republic of Smithlandia

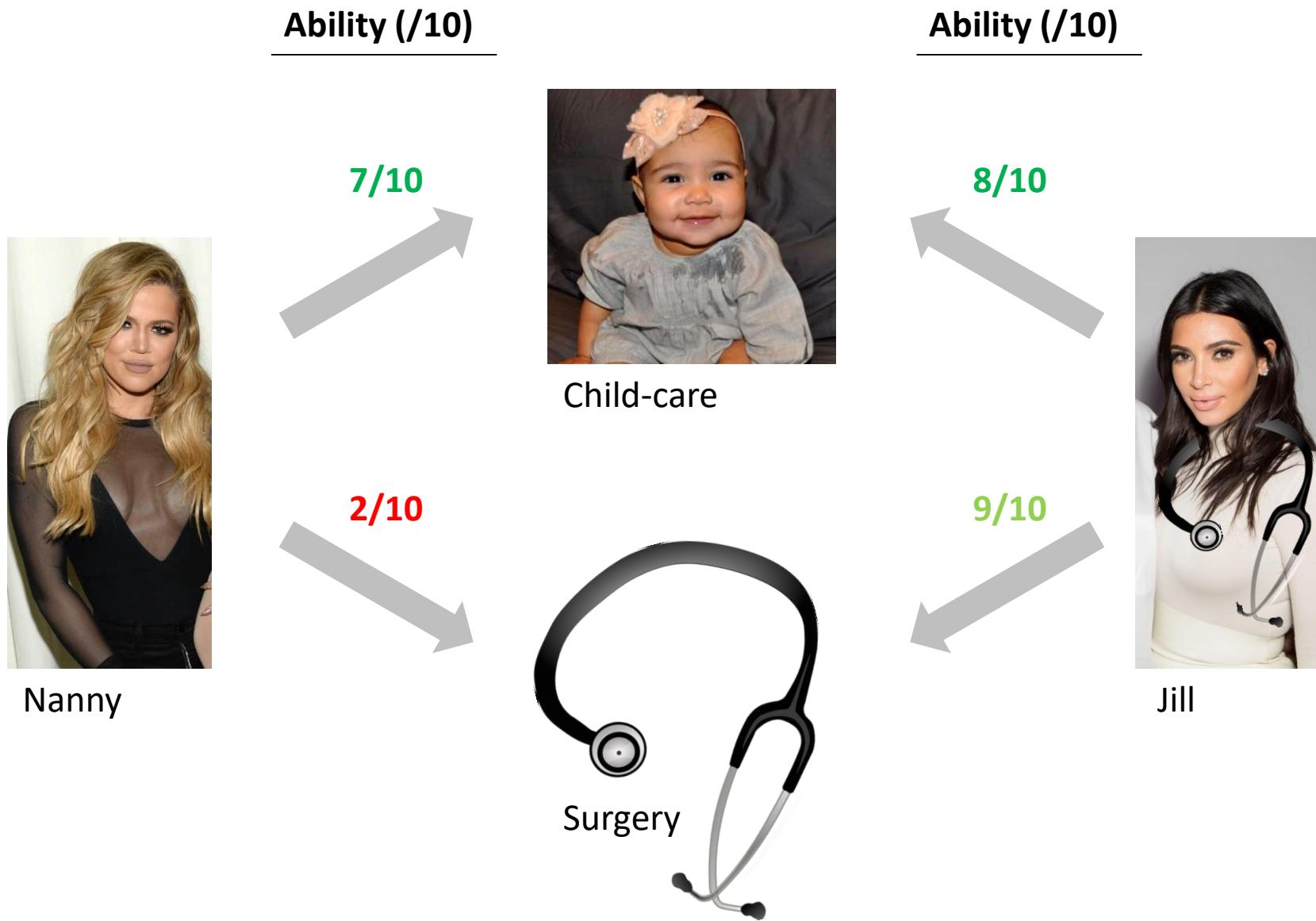


When Jill employed a nanny, Smithlandia's child-care sector shrunk, but its medical sector increased, which is more productive.

The Republic of Smithlandia

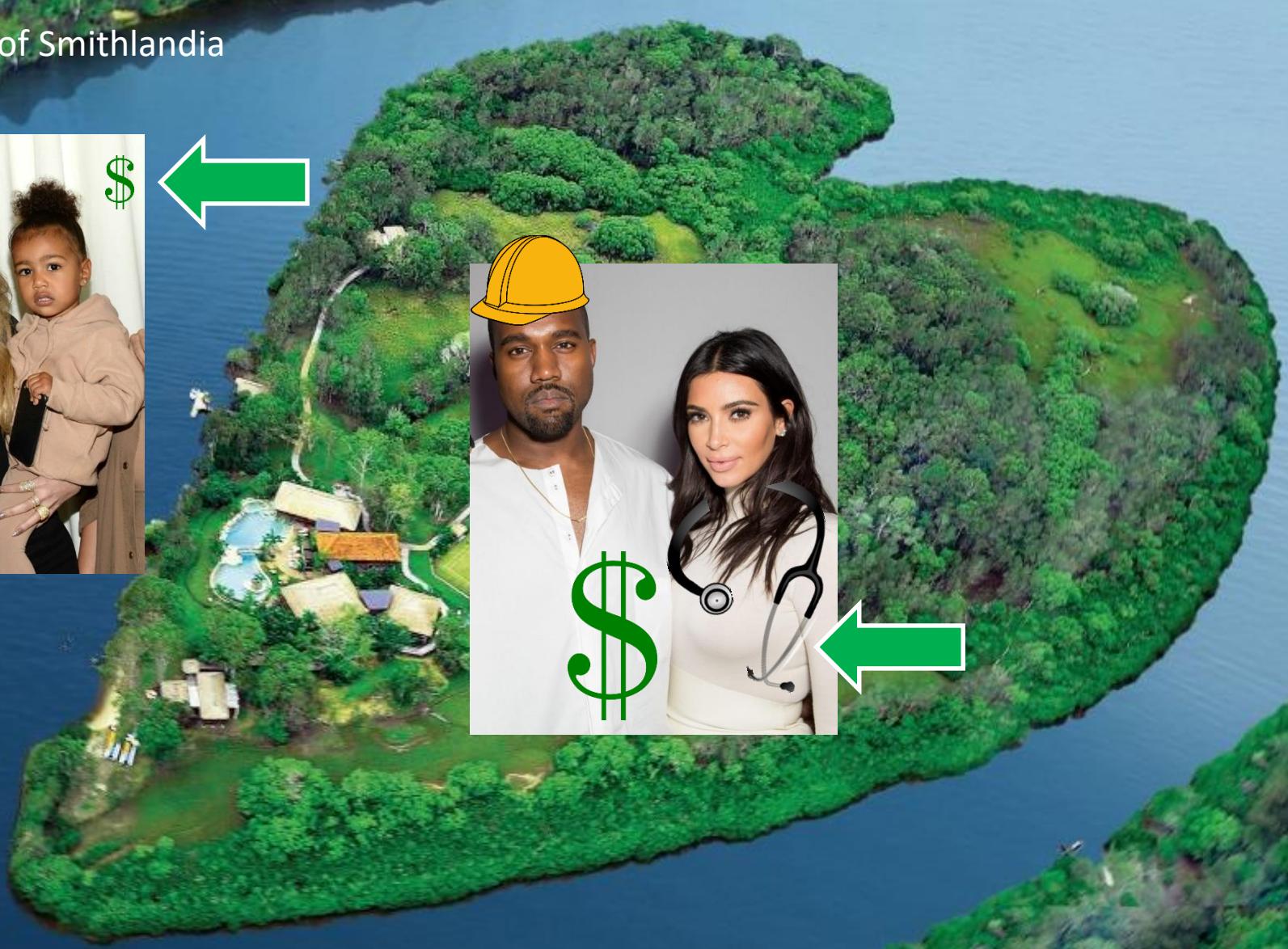


Even if Jill is better at child-care than the nanny (absolute advantage), she is much better at surgery (comparative advantage), so should do that



Free trade was better for both Smithlandia and Nannytopia.

The Republic of Smithlandia



So far free trade sounds good. So why do people protest against it?



Back in the Smith house, imagine if Jill enjoyed childcare – despite the low pay - and was forced to stop doing it



Baby Smith

Jack and Jill Smith



Or, imagine if Jill had to re-train as a surgeon, and so it took a long time to find a job.



Baby Smith

Jack and Jill Smith



So, the Smiths show us that free trade is good in the long run, but has adjustment costs in the short run, and may not benefit everyone equally

Free Trade

		Advantages	Disadvantages
Short Term		<ul style="list-style-type: none">• Consumers: more goods and lower prices• Export firms with comparative advantage: expand	<ul style="list-style-type: none">• Export firms without comparative advantage: shrink<ul style="list-style-type: none">• Workers must retrain
	Long Term	<ul style="list-style-type: none">• More competition• More productivity after people move into new sectors• Cheaper goods	<ul style="list-style-type: none">• Potential for inequality to grow

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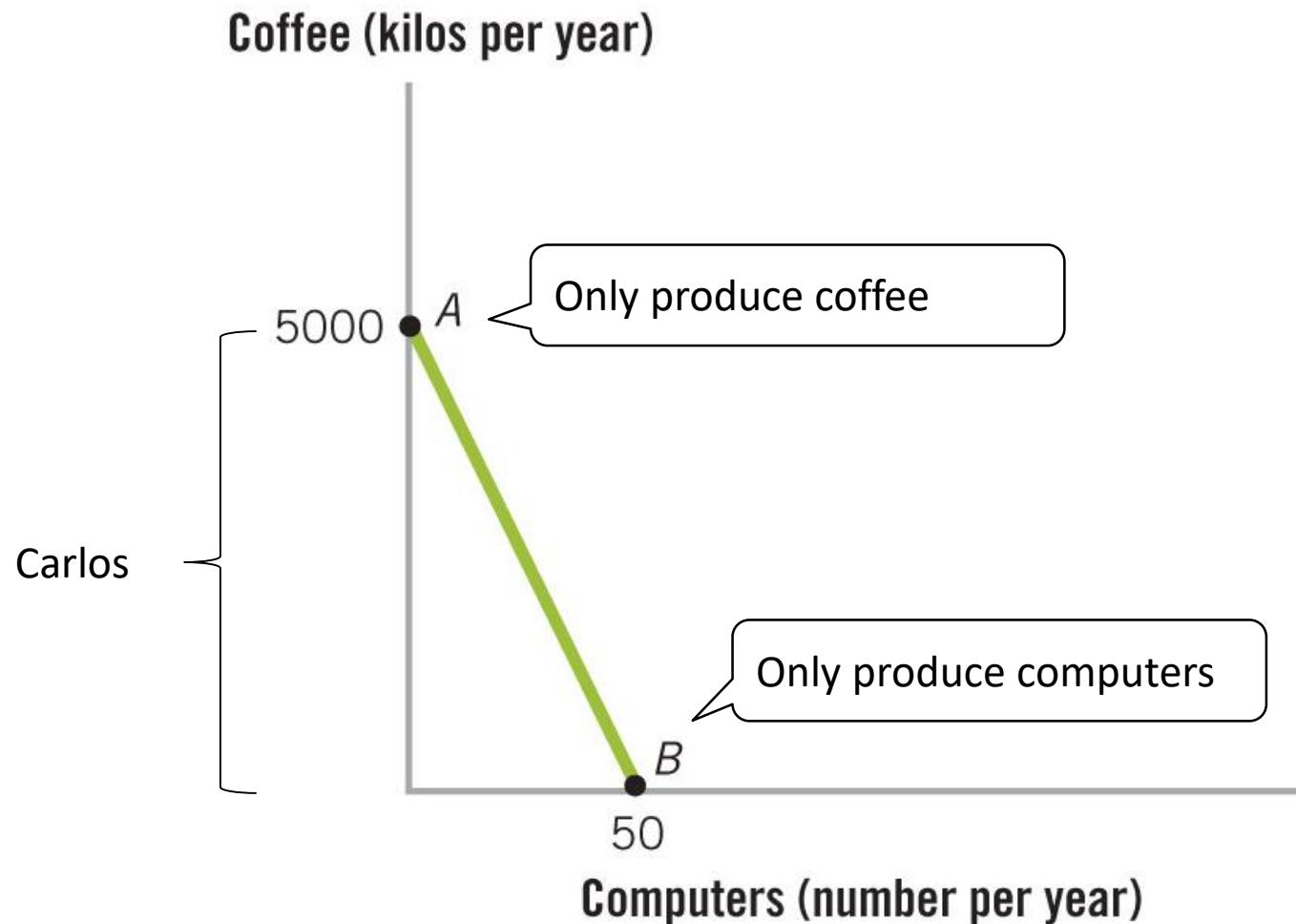
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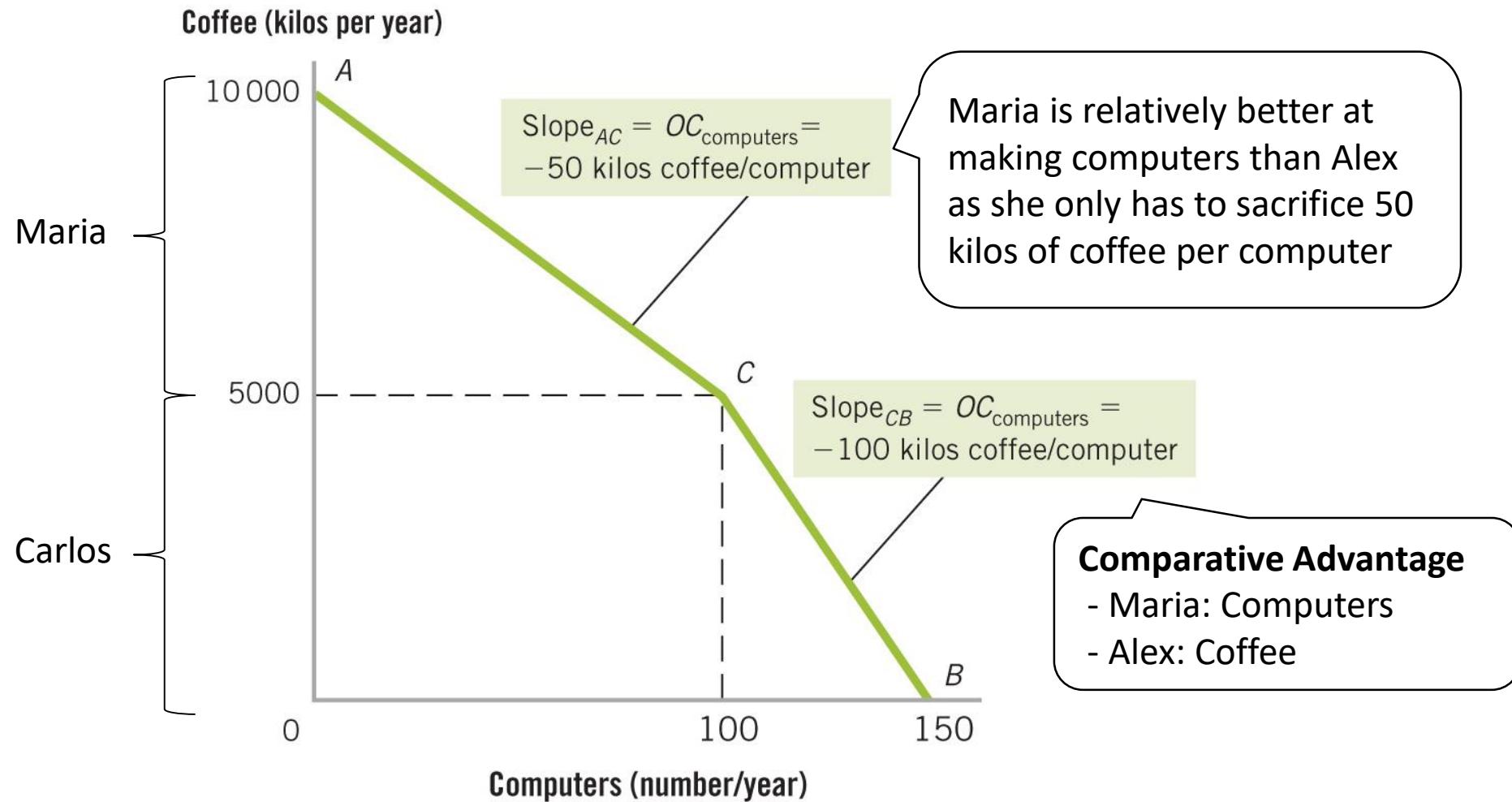
The Production Possibilities Curve (PPC) describes the tradeoff between producing one good or another.

One-worker Production Possibilities Curve for Coffee and Computers



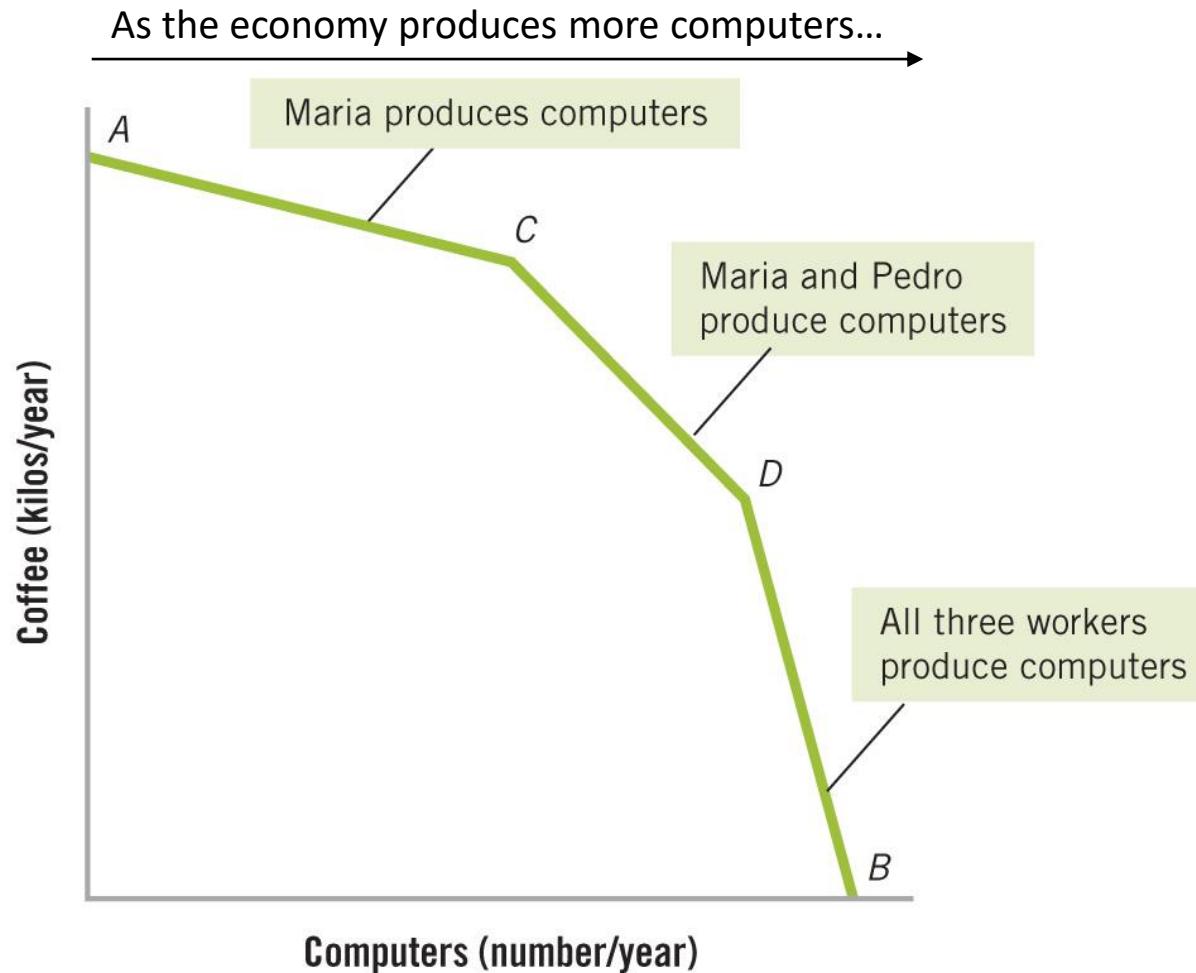
The PPC can describe the tradeoffs of many workers, who we rank by their comparative advantage in each good (the slope of the curve)

Two-worker Production Possibilities Curve for Coffee and Computers



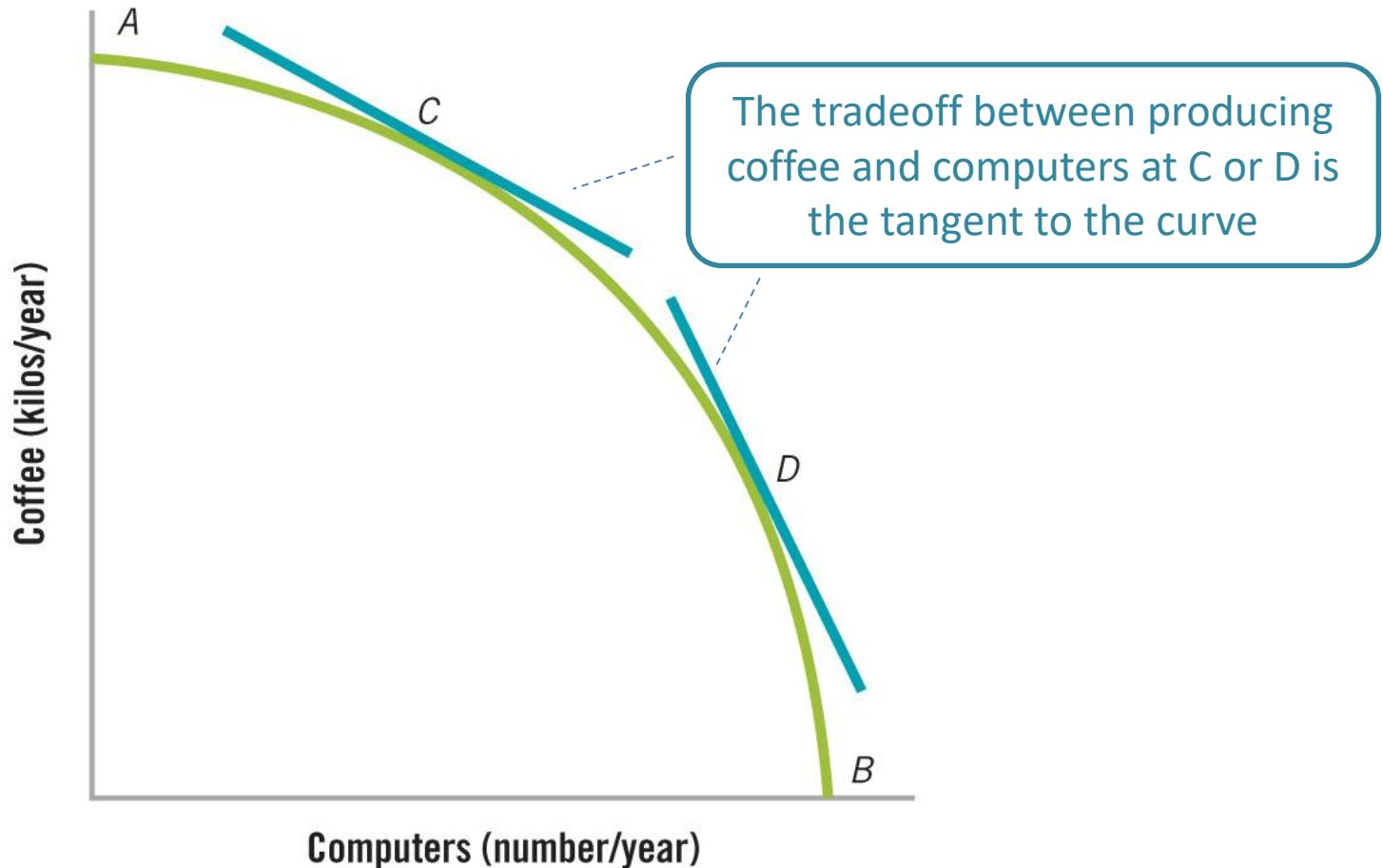
When we want to produce computers we start by using the workers with the largest comparative advantage

Three-worker Production Possibilities Curve for Coffee and Computers



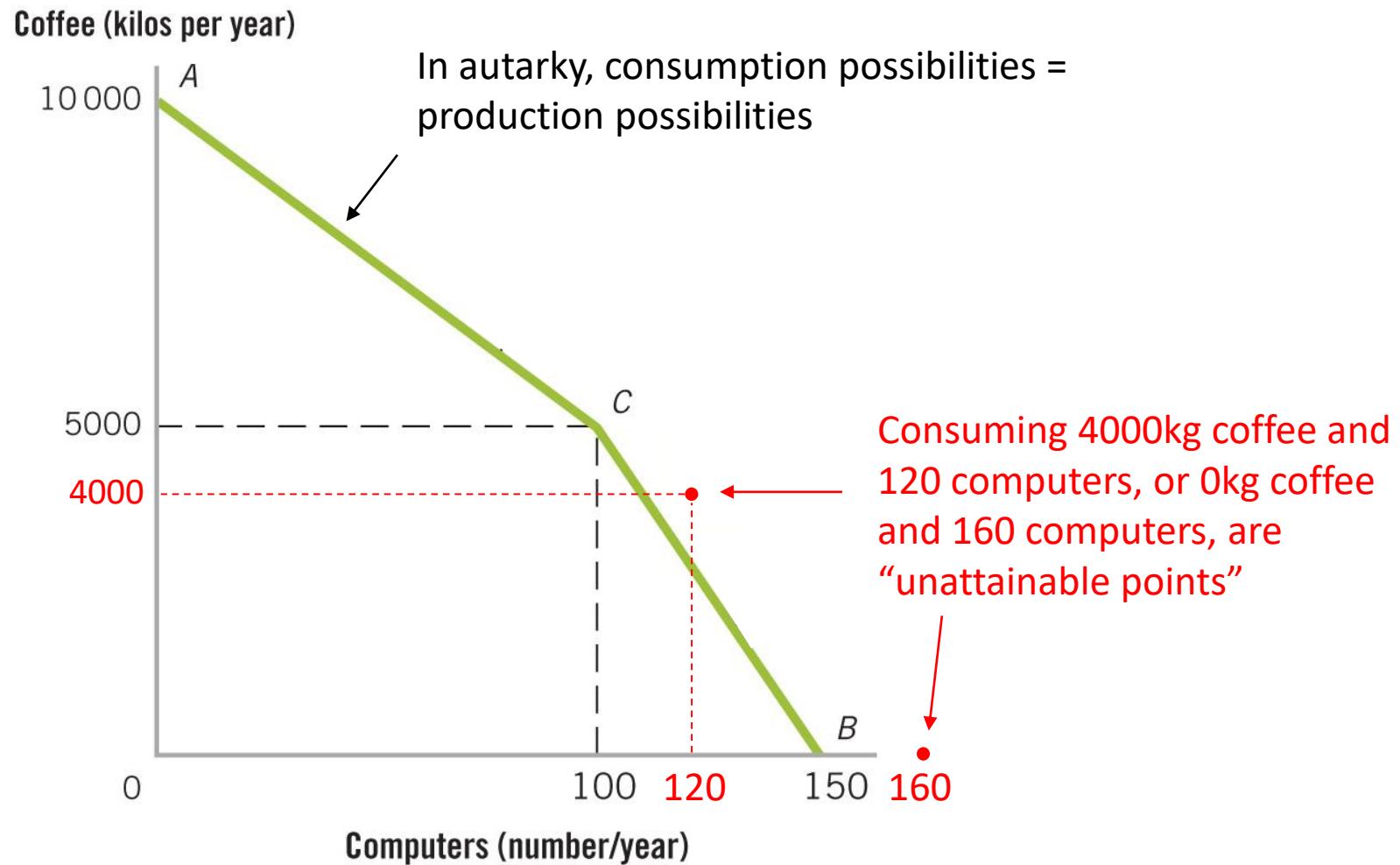
If the economy has a large number of workers then the PPC becomes smooth

Many-worker Production Possibilities Curve for Coffee and Computers



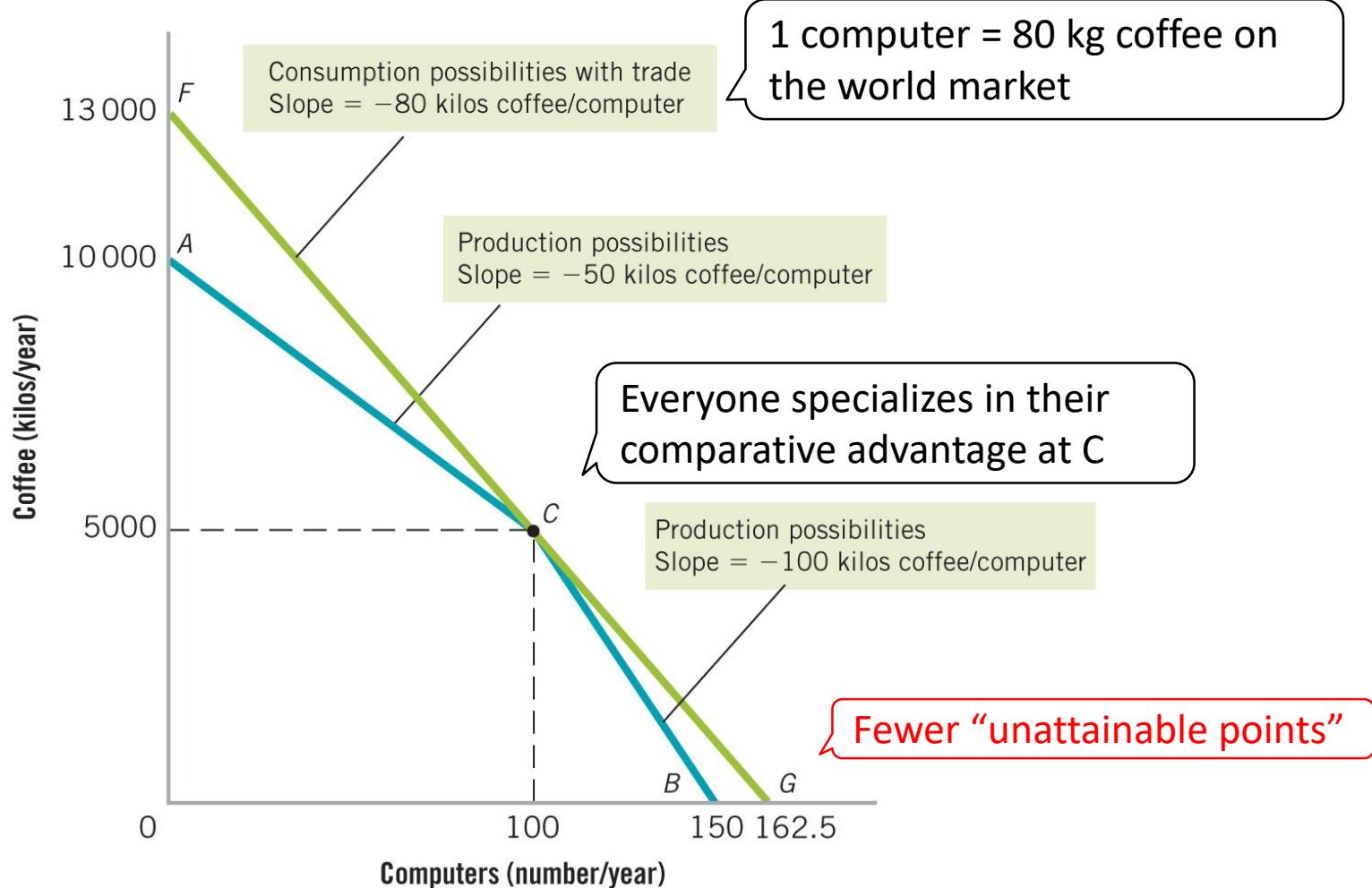
If the economy is closed to trade (called “autarky”), then it can only consume what it produces. Some combinations will be “unattainable”

Production and Consumption Possibilities Curve, no trade (autarky)



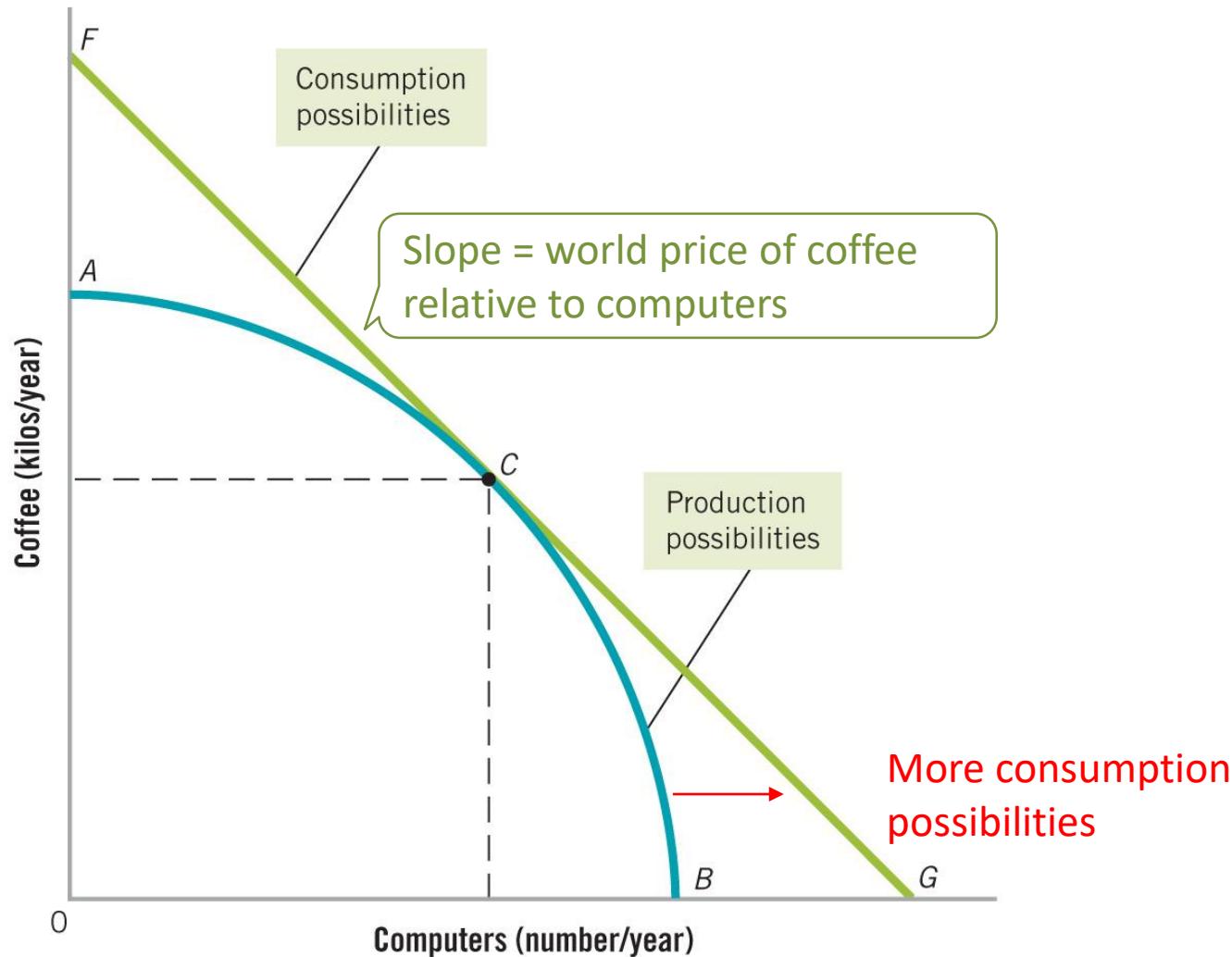
If the economy is open to trade, then it can produce based on comparative advantage, and trade to increase consumption possibilities

Production and Consumption Possibilities Curves, with trade



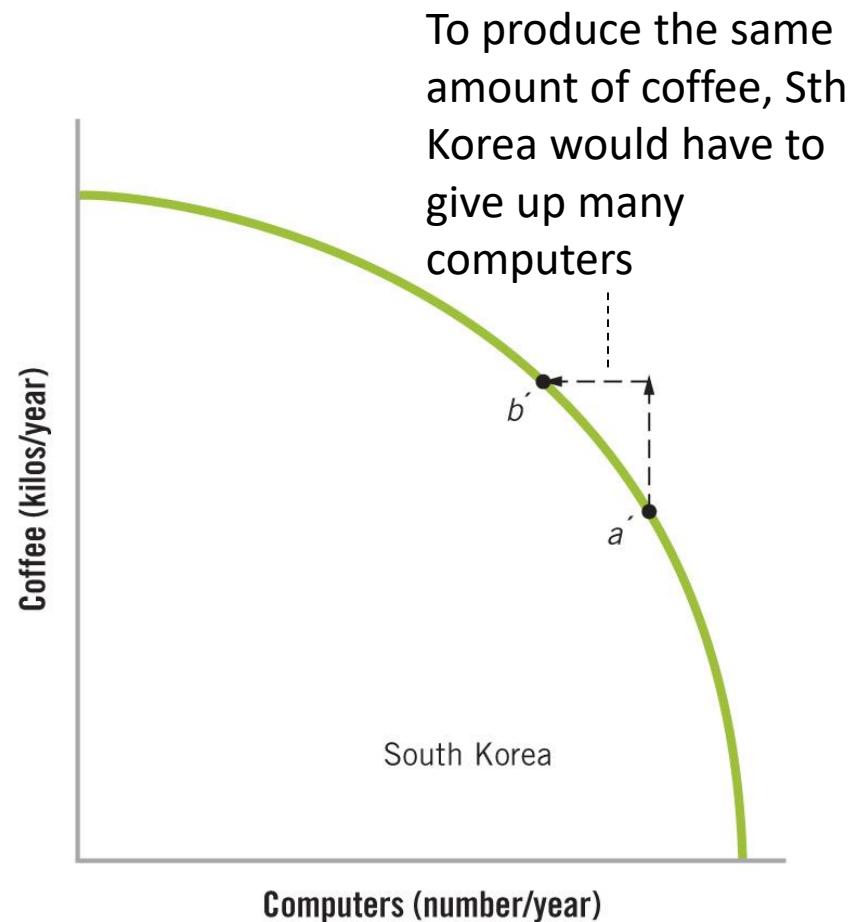
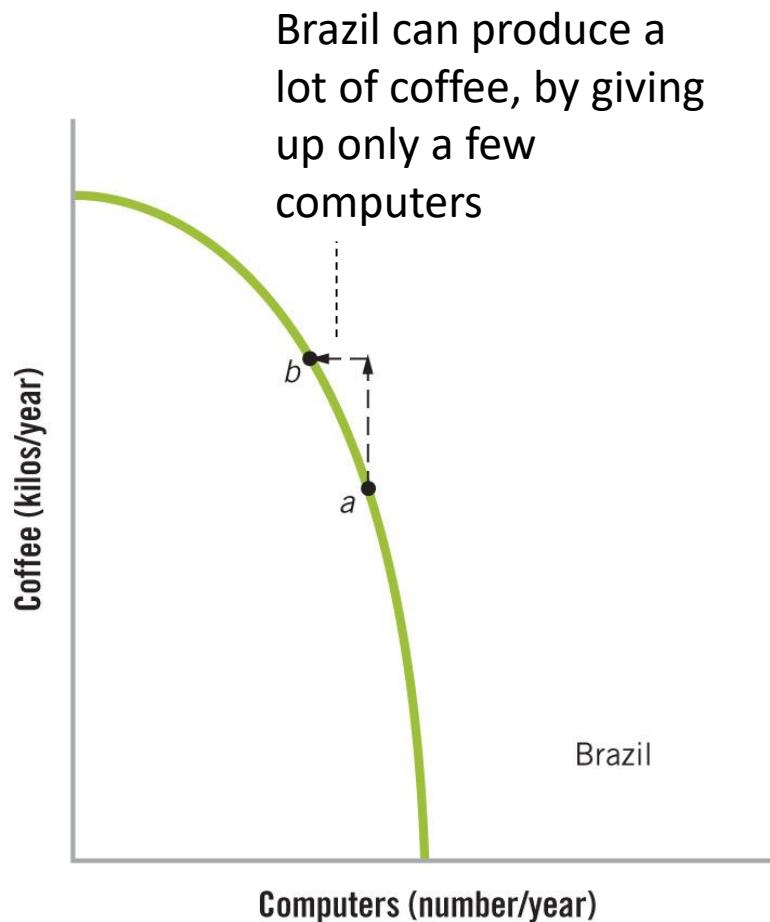
In a large economy, with workers that have widely varying comparative advantages, the gains from trade are even bigger

Production and Consumption Possibilities Curves, with trade



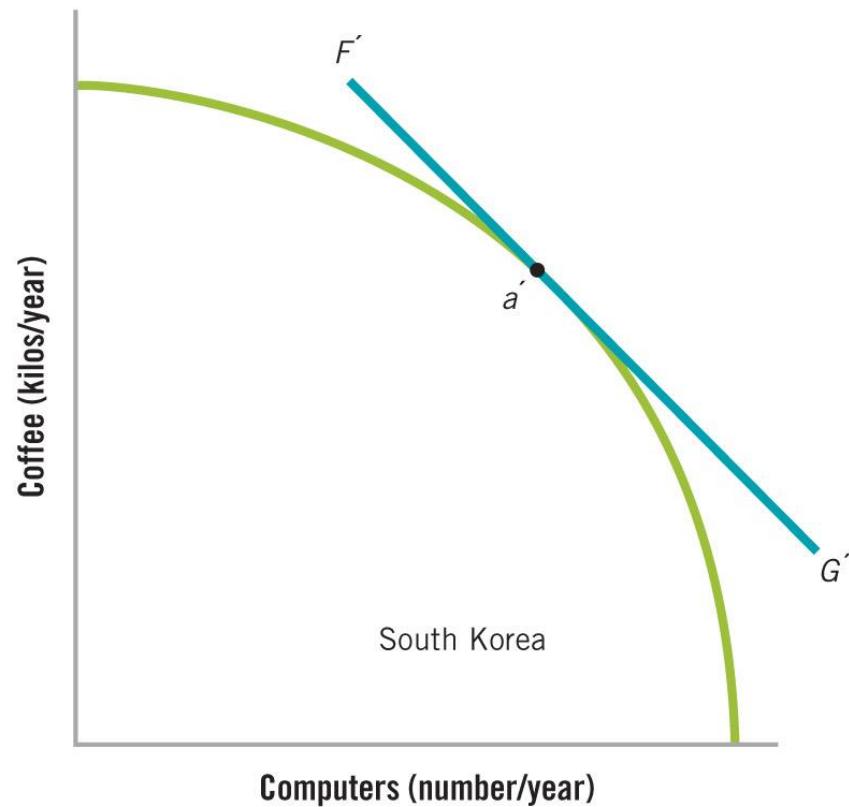
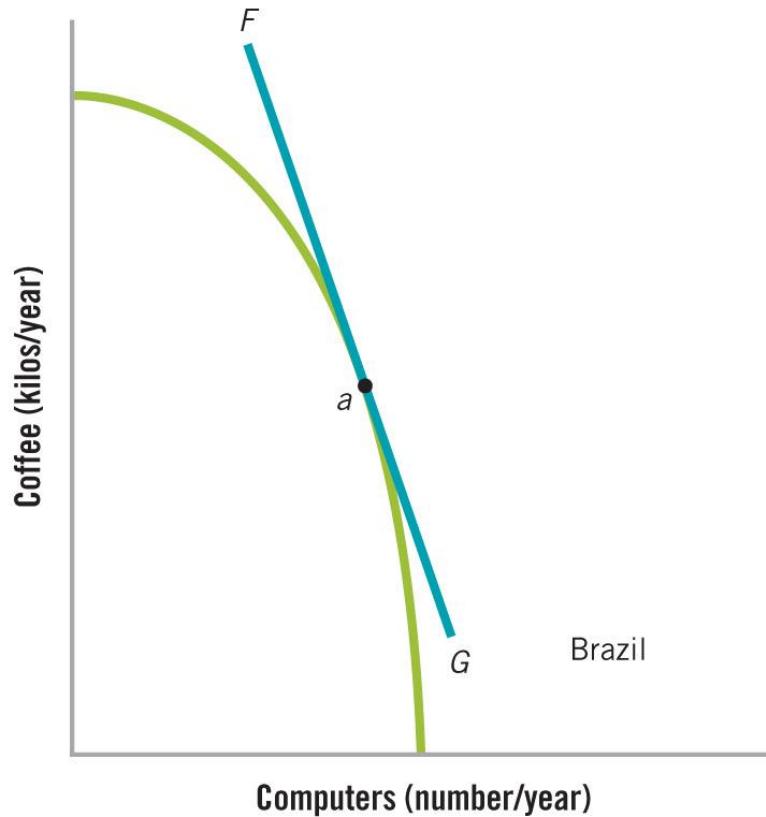
Countries overall also have different comparative advantages. Brazil has a comparative advantage over Korea in coffee relative to computers

Production Possibilities Curves, Brazil vs South Korea



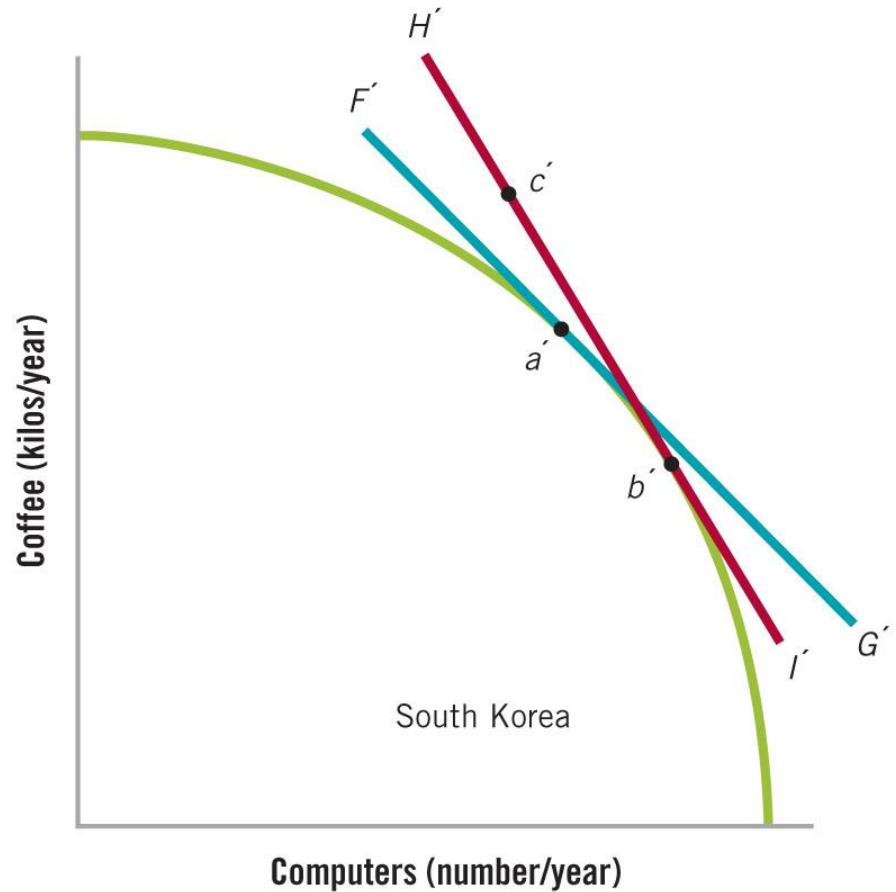
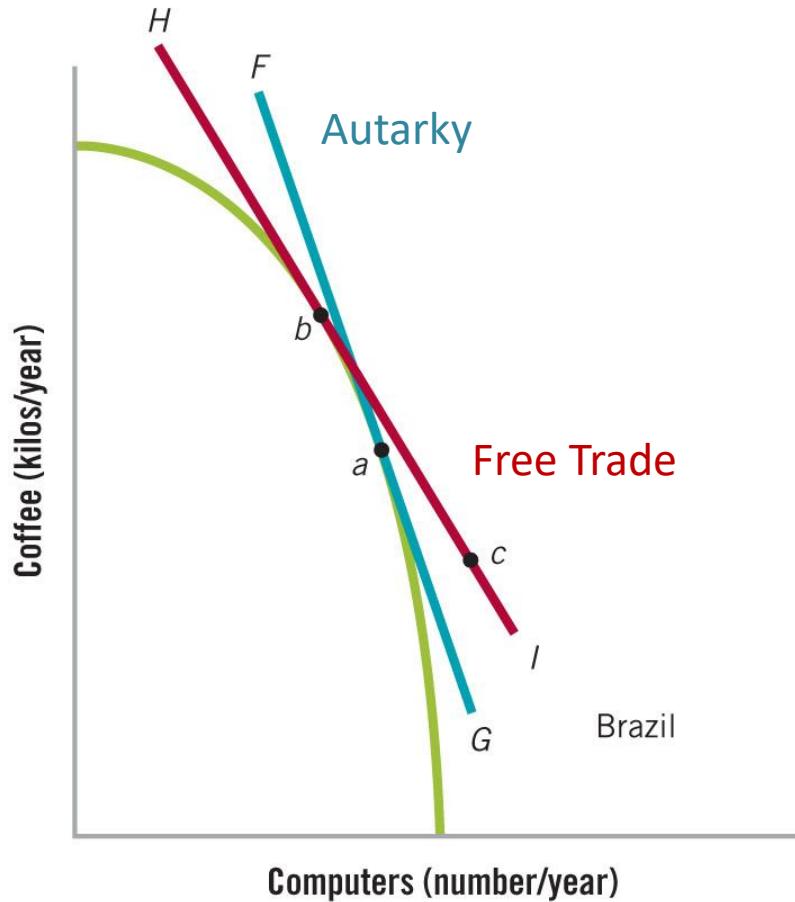
In autarky each country is restricted to consuming only what they produce

Production and Consumption Possibilities Curves, Brazil vs South Korea



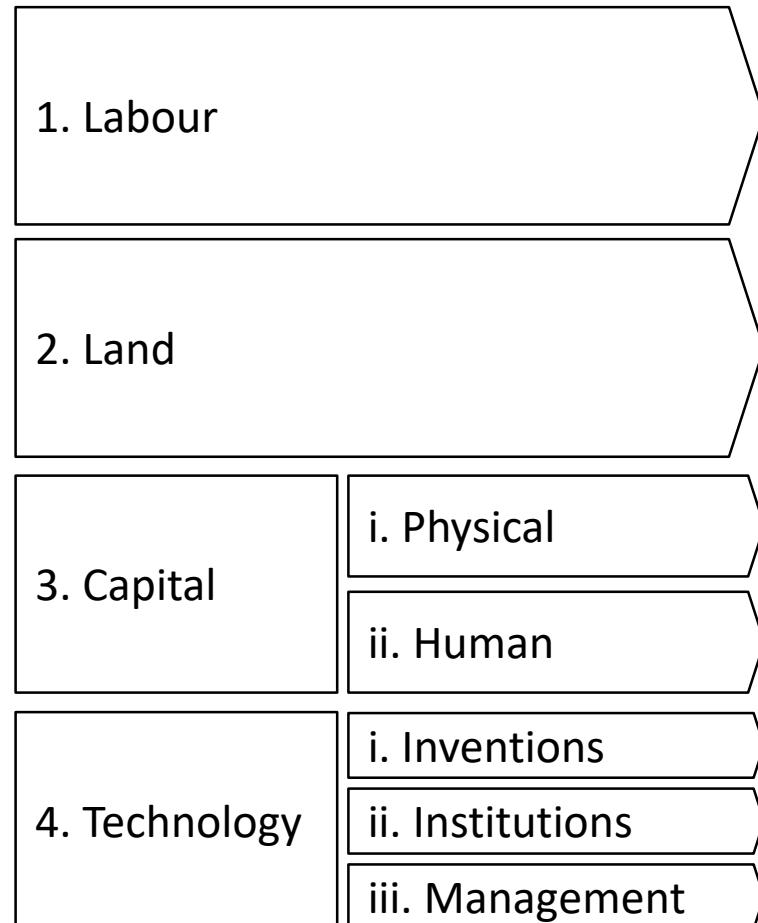
Under free trade each country can exchange what they produce at the world price, increase consumption opportunities for both

Production and Consumption Possibilities Curves, Brazil vs South Korea



Where does comparative advantage come from? The relative endowment of land, labour, capital and tech. (“production factors”) in each country.

Factors of production



Every country has a comparative advantage. Australia is better at both ag. and manuf. than Mali, but Mali has a comp. adv. in ag.



So, does a high-wage country like Australia lose from trading with a low-wage country like Bangladesh?

The Sydney Morning Herald

AUGUST 28 2013

Future unravels for state's last textile firm

Cheap foreign competition claims its latest victim, writes Lucy Carroll.



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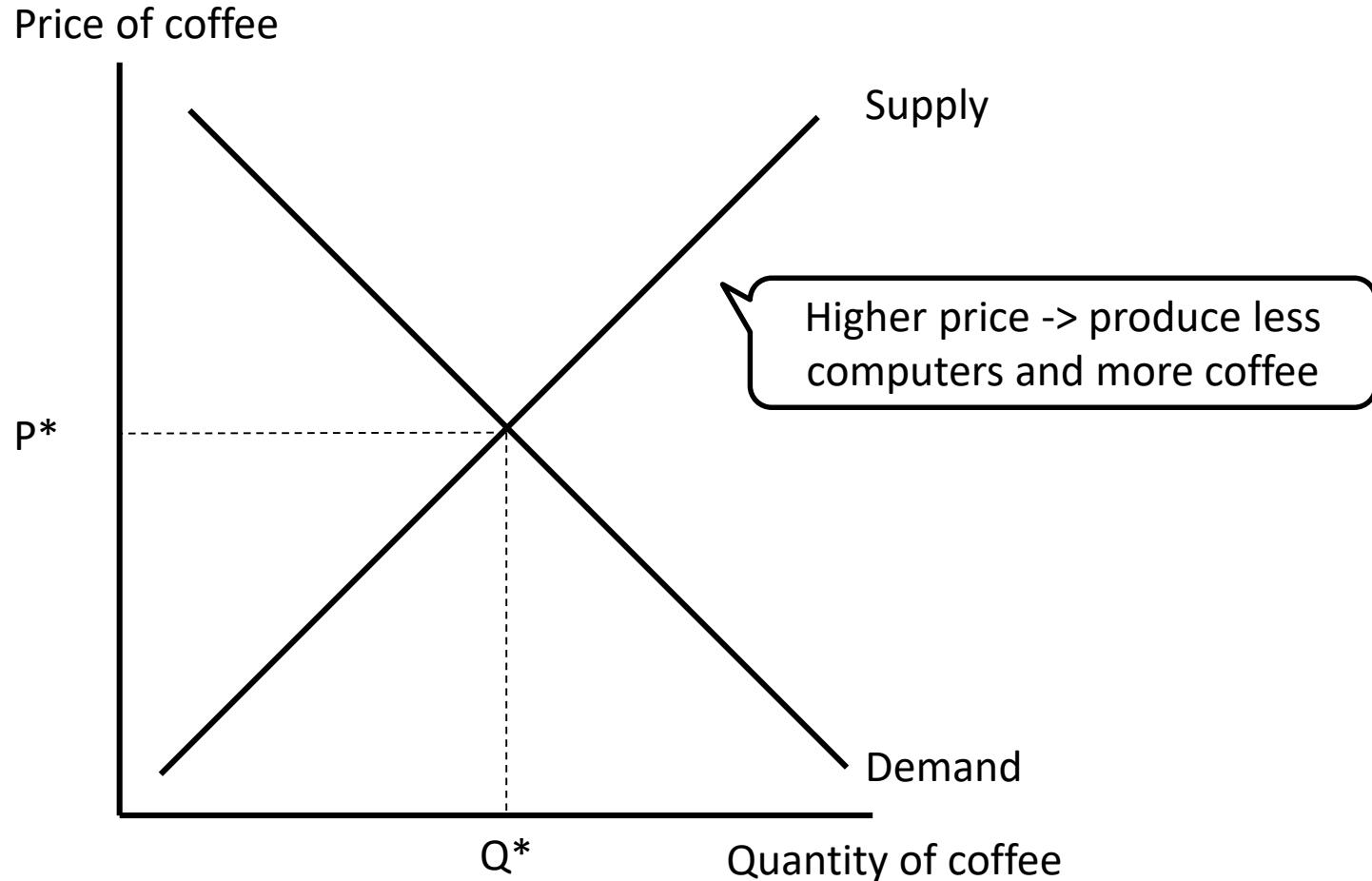
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So far we have seen that trade increases the consumption possibilities for all goods overall. What does it mean for specific industries?



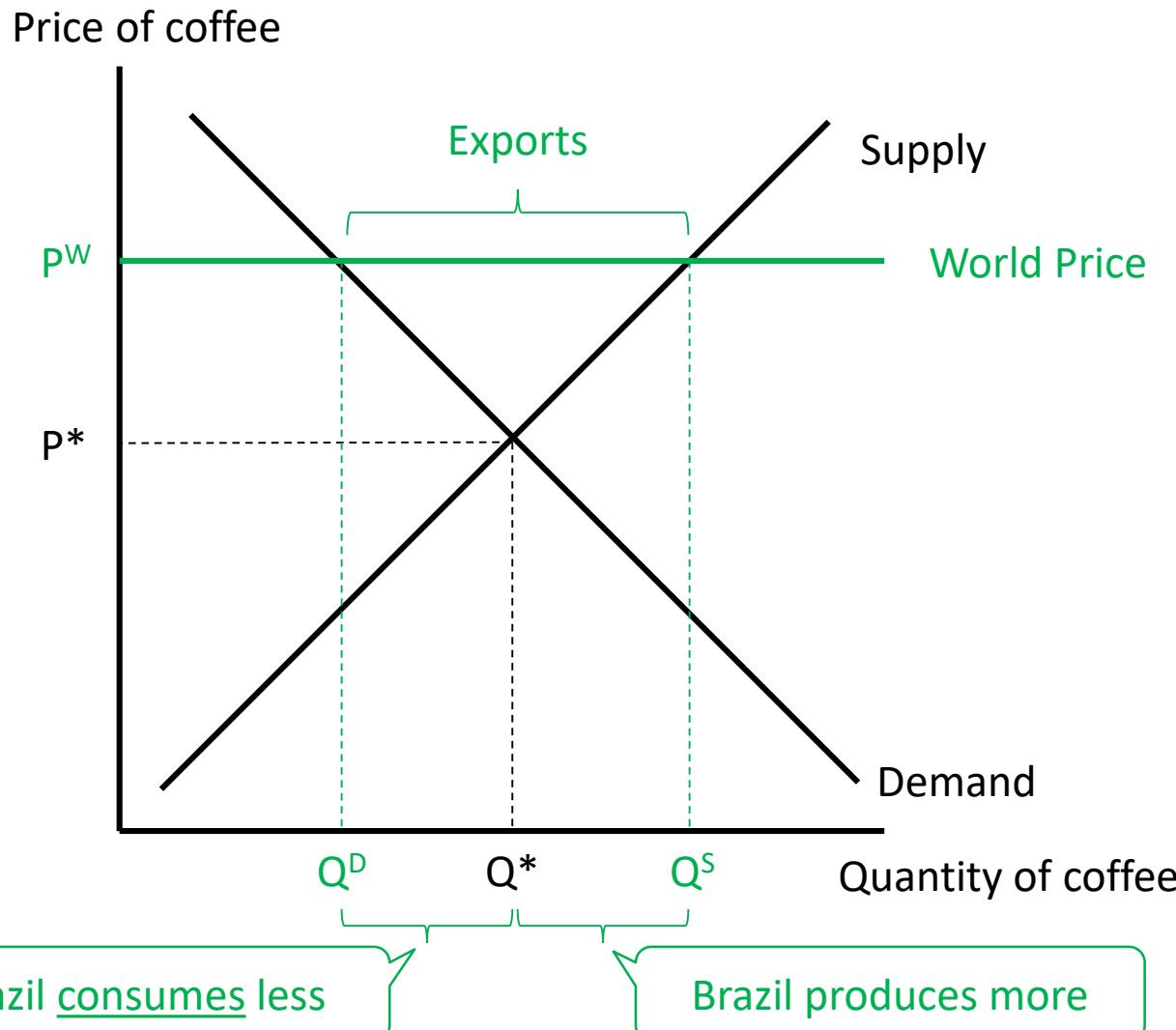
In our previous example Brazil had a comparative advantage in producing coffee.

Supply and demand for coffee in Brazil, Autarky



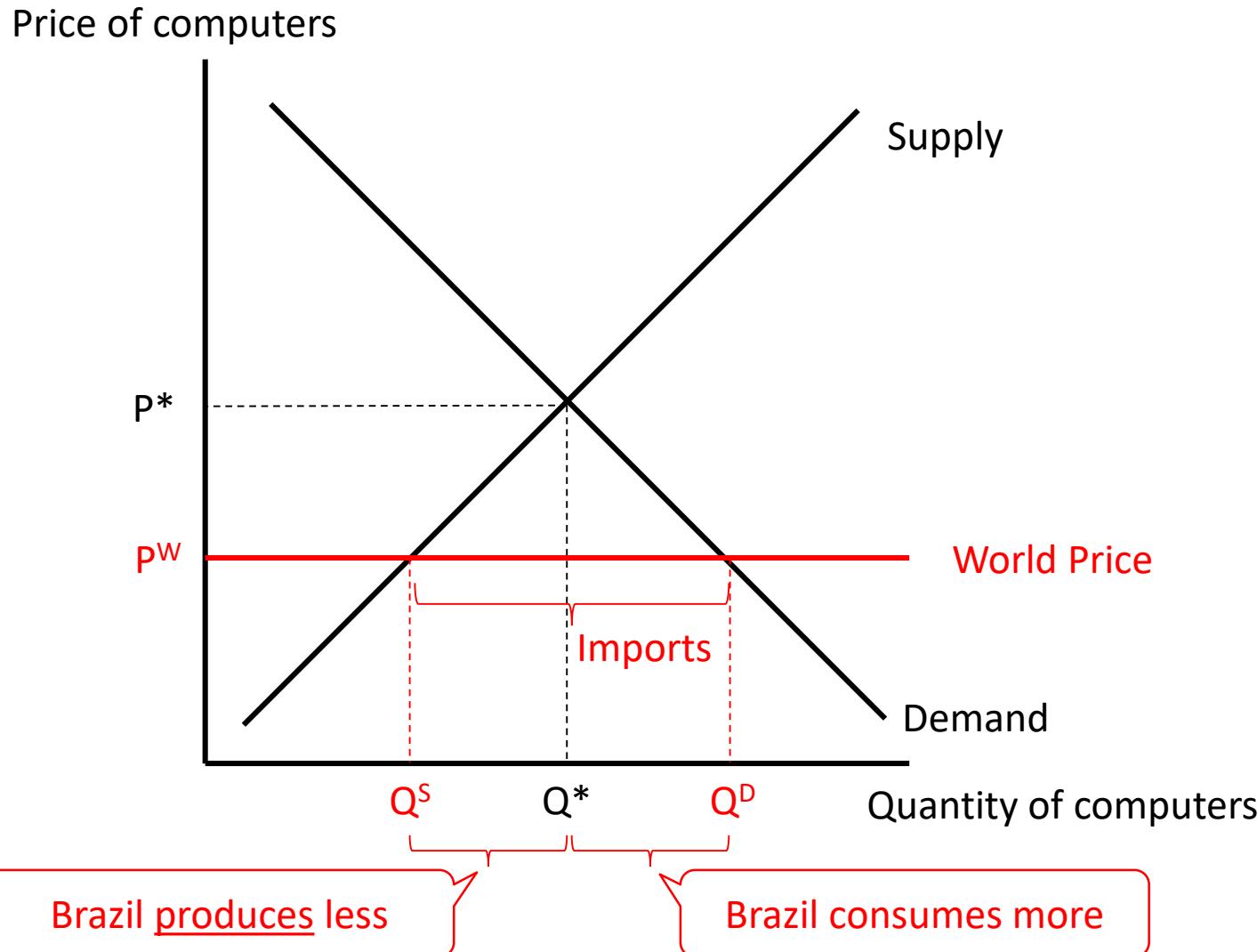
As Brazil can produce coffee relatively easily compared to other places, the world price will be higher than domestic equilibrium under free trade

Supply and demand for coffee in Brazil, Free Trade



The opposite will happen with computers. Brazil will produce fewer computers, but consume more of them.

Supply and demand for computers in Brazil, Free Trade



Free trade benefits the domestic consumers of imported goods and domestic producers of exported goods.

Winners and losers from trade



Domestic Comparative Advantage

Domestic Comparative Disadvantage

Consumers

Losers
(world price higher)

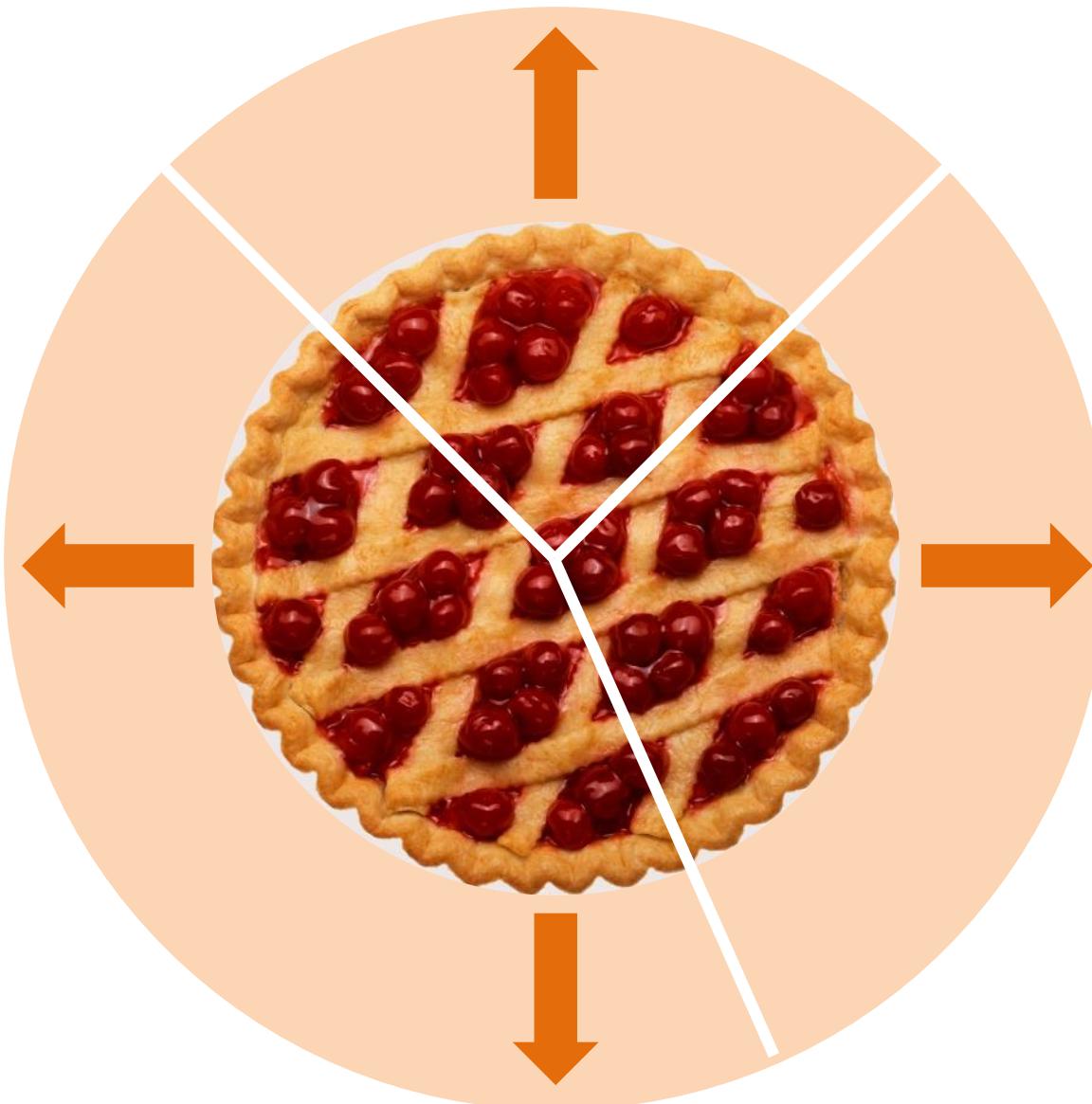
Winners
(world price lower)

Producers

Winners
(world price higher)

Losers
(world price higher)

So, while free trade increases the size of the pie, the slices are not shared equally. Some people benefit more than others



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What will happen if Donald Trump imposes a 20% tax on Mexican imports? Will it “protect American jobs”?



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Trump floats 20% tax on Mexican imports to pay for wall, but considering other options



By **Jeremy Diamond**, CNN

Updated 1602 GMT (0002 HKT) January 27, 2017



Waiting for beacon.krxn.net...

Top stories



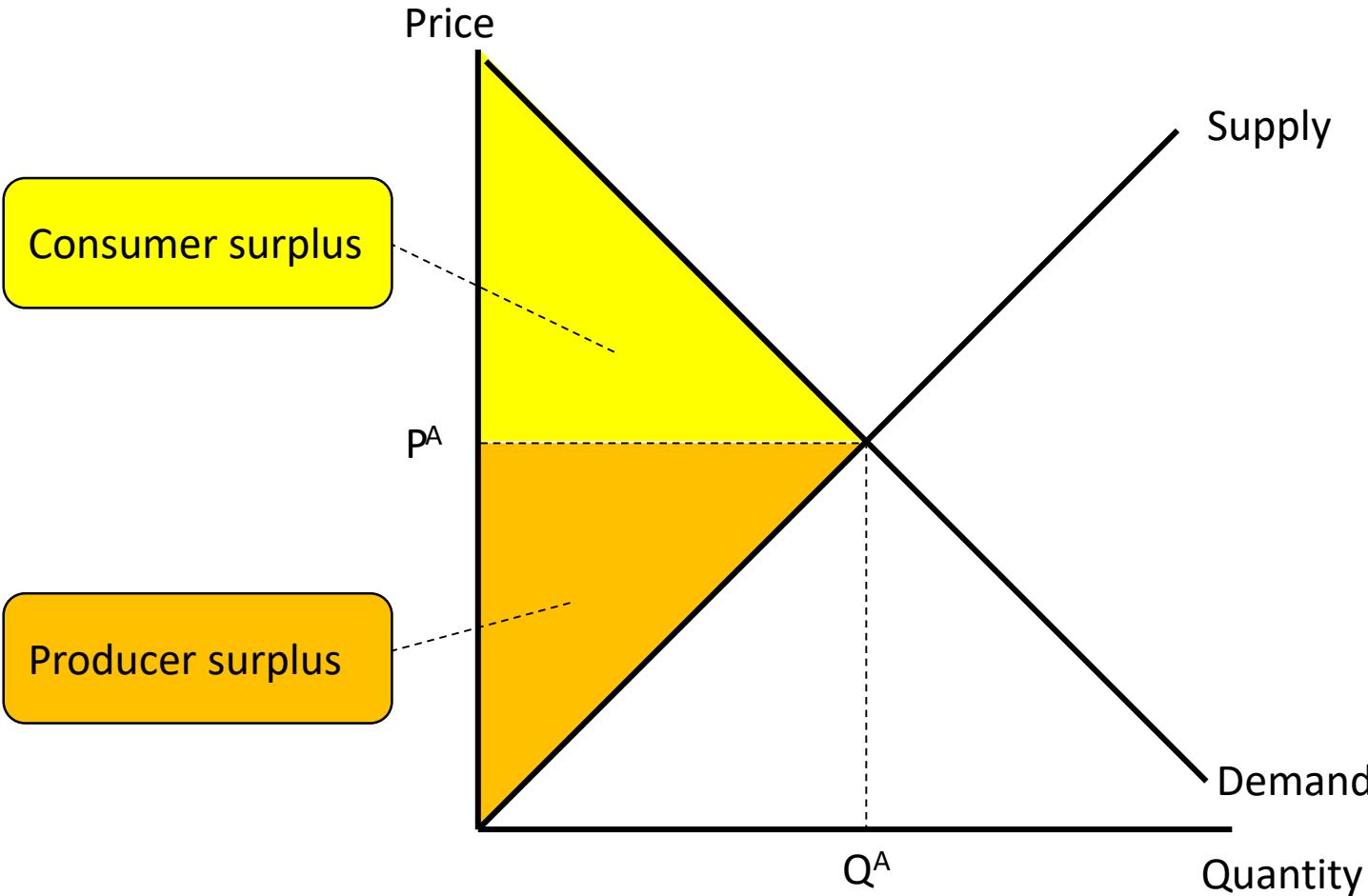
Donald Trump's most bone-chilling tweet



McConnell: Use of nuclear option is 'up to Democrats'

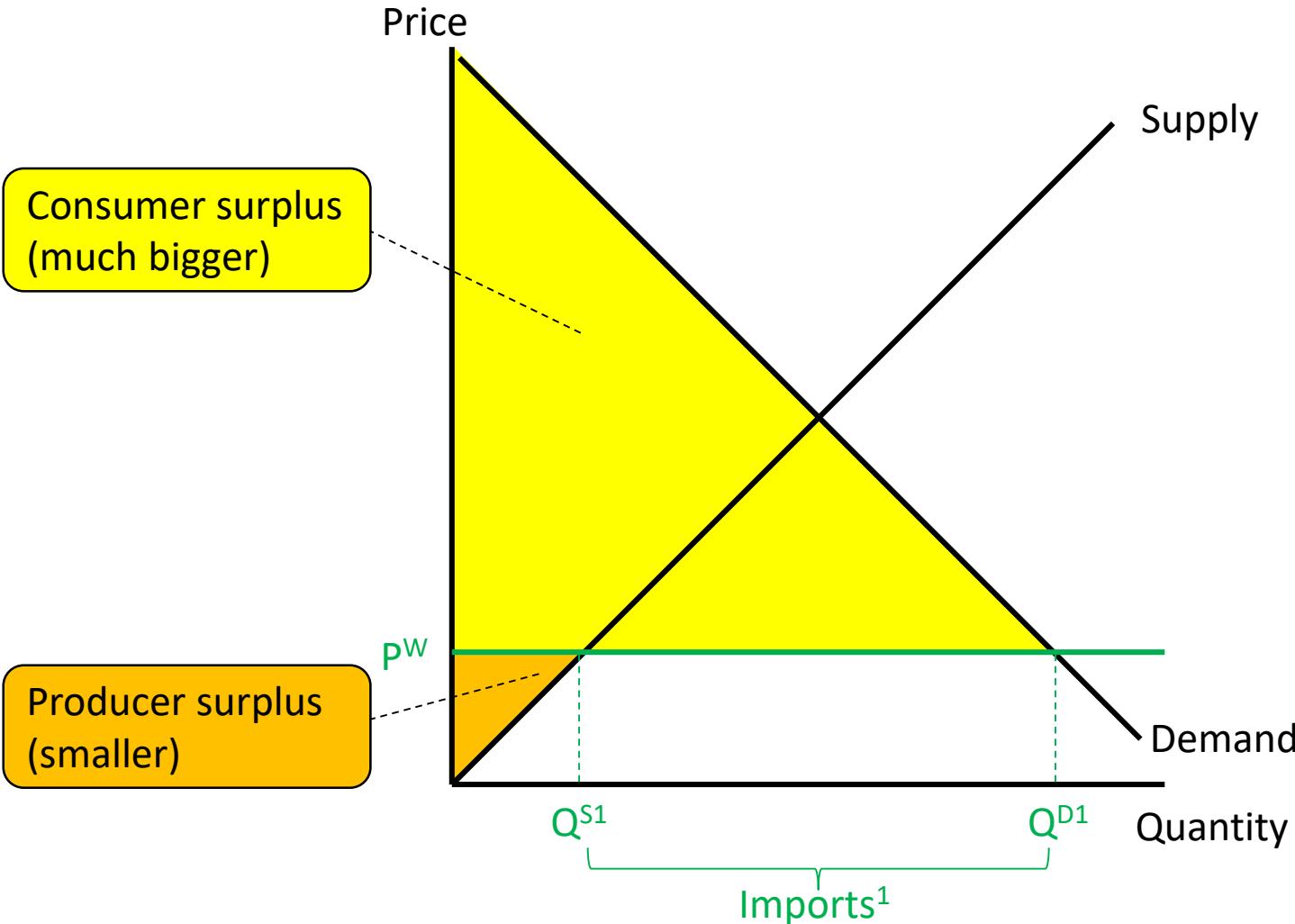
Starting with autarky we can compare consumer and producer surplus if there is no trade at all

Supply and demand for cars in the USA



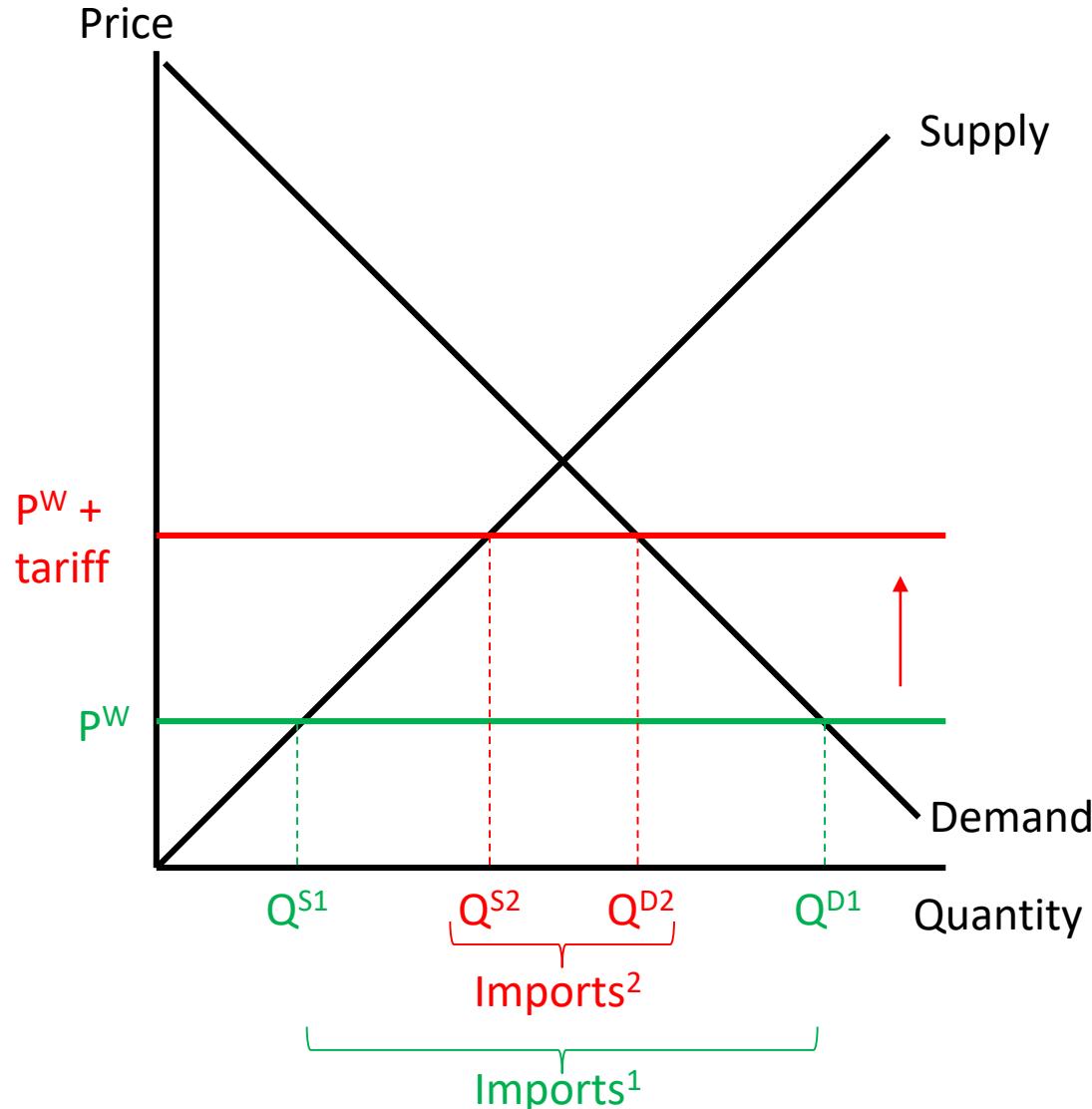
Moving to free trade we see a large increase in total surplus, because of a big increase in consumer surplus. But, local producer surplus falls

Supply and demand for cars in the USA



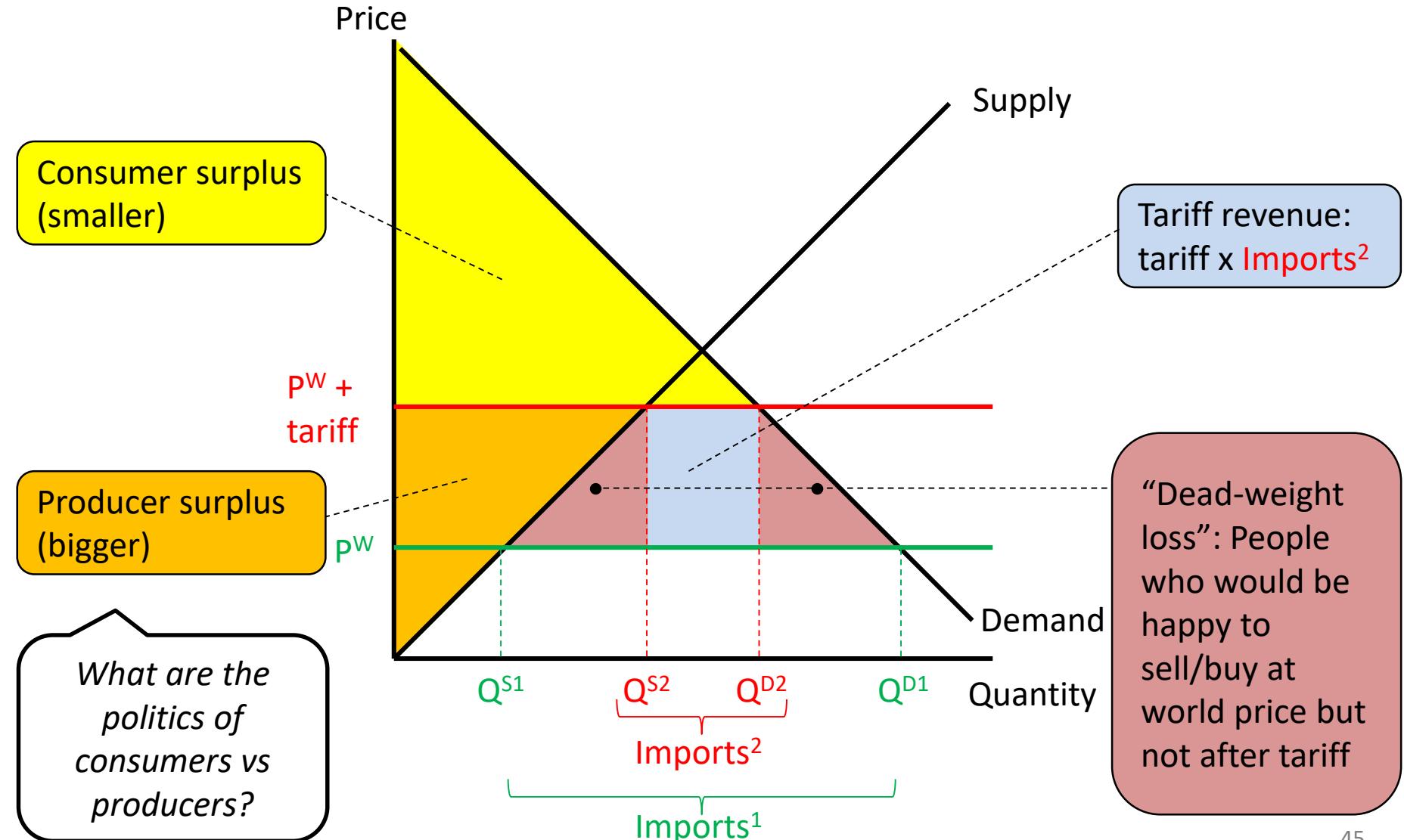
Tariffs raise the local price of goods – hurting consumers, and reduce imports – helping producers

Supply and demand for cars in the USA



Tariffs reduce consumer surplus, increase producer surplus, raise gov't revenue and create a “deadweight loss”

Supply and demand for cars in the USA



What is the result of China's import quotas (limits) on rice, wheat and corn?

EDITION: UNITED STATES ▾

 **REUTERS**

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COMMODITIES | Fri Dec 16, 2016 | 3:38am EST

U.S. challenges China's grain import quotas at WTO

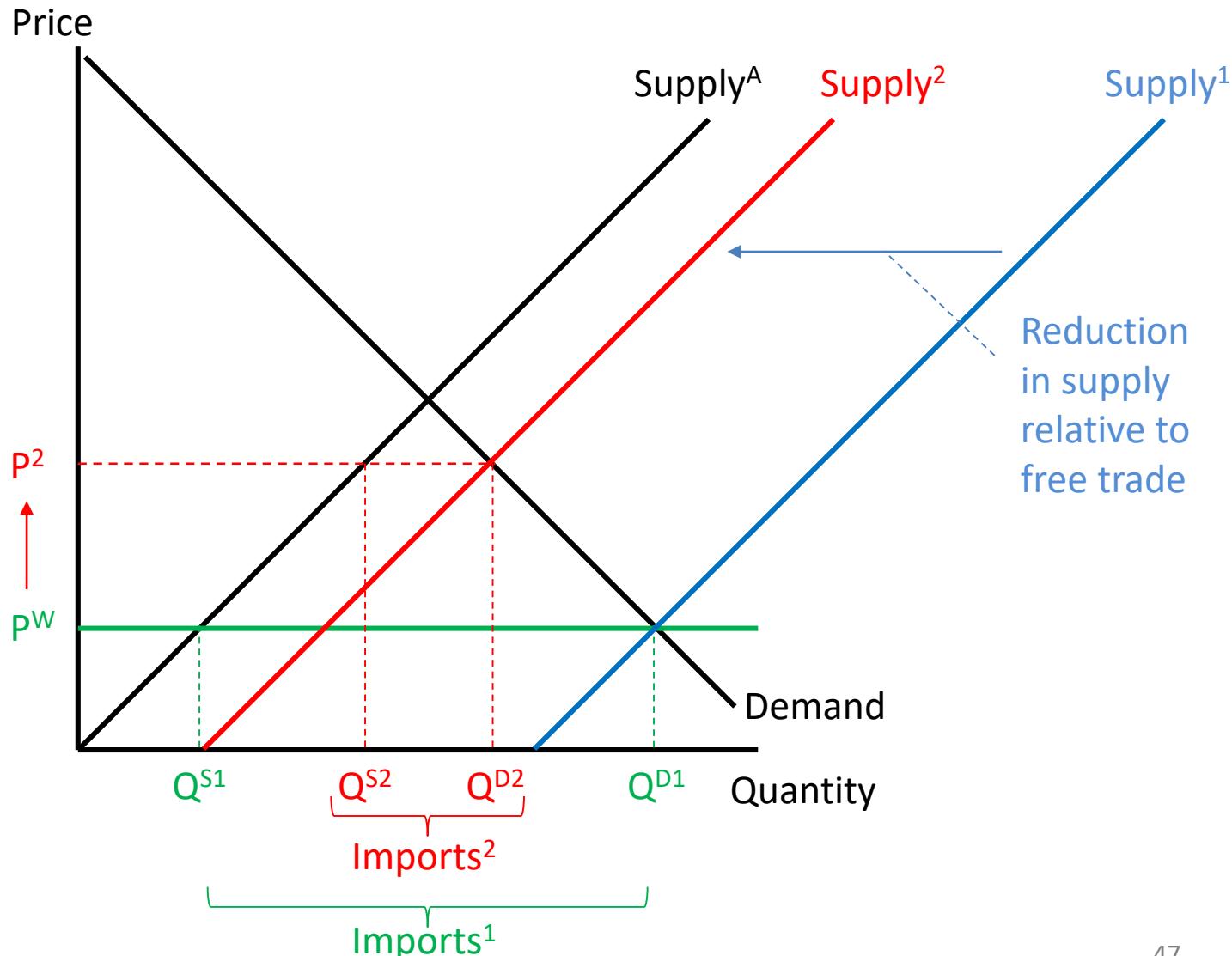


TRENDING STORIES

- 1** Trump steps up attack on judge, court system over travel ban
- 2** France's Le Pen launches election bid with vow to fight globalization
- 3** Trump says Pence will lead voter fraud panel
- 4** German magazine defends cover showing Trump beheading Statue of Liberty

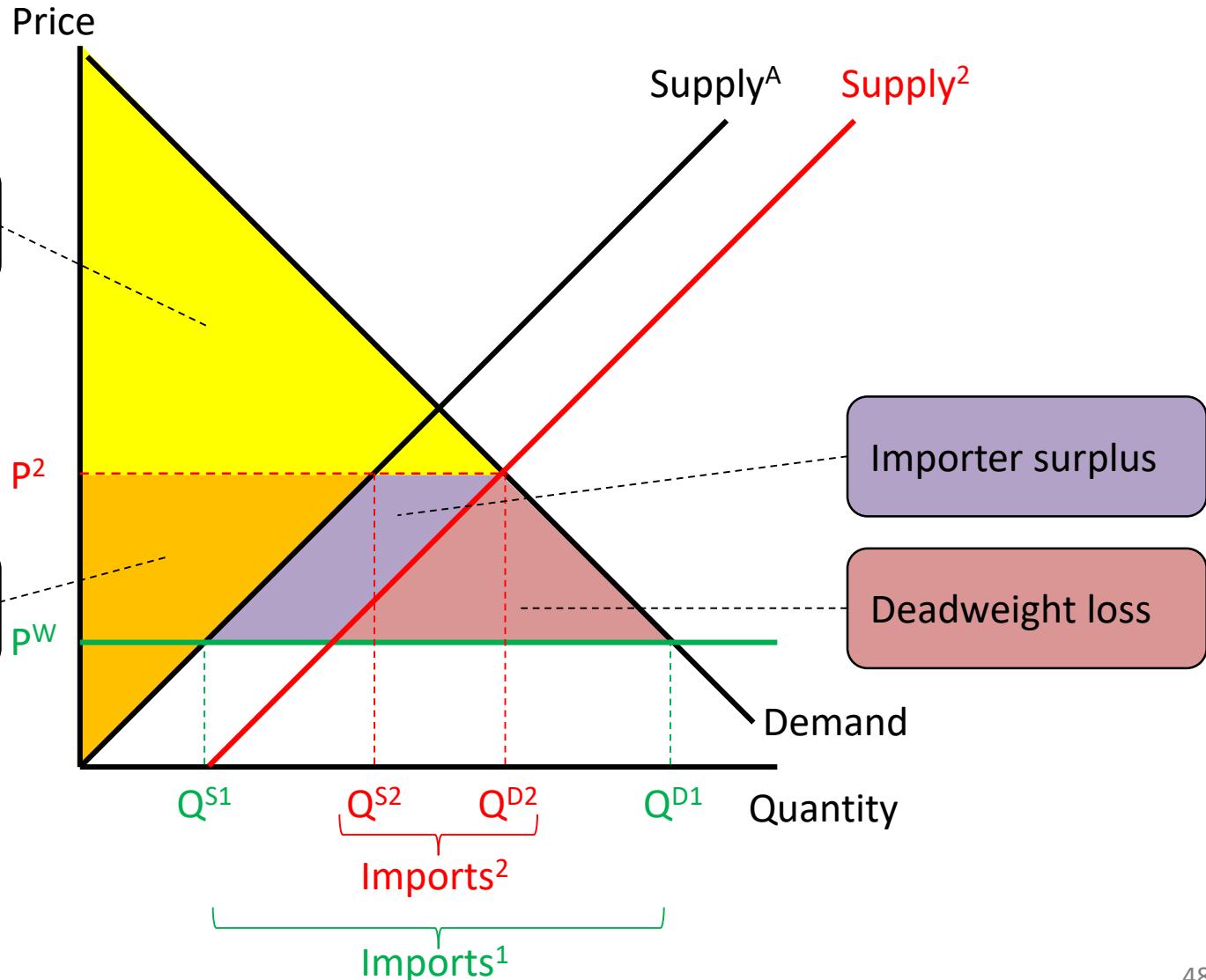
Quotas limit the amount of good supplied by imports. Like a tariff it raises the local price, hurting consumers and helping producers

Supply and demand for grain in China



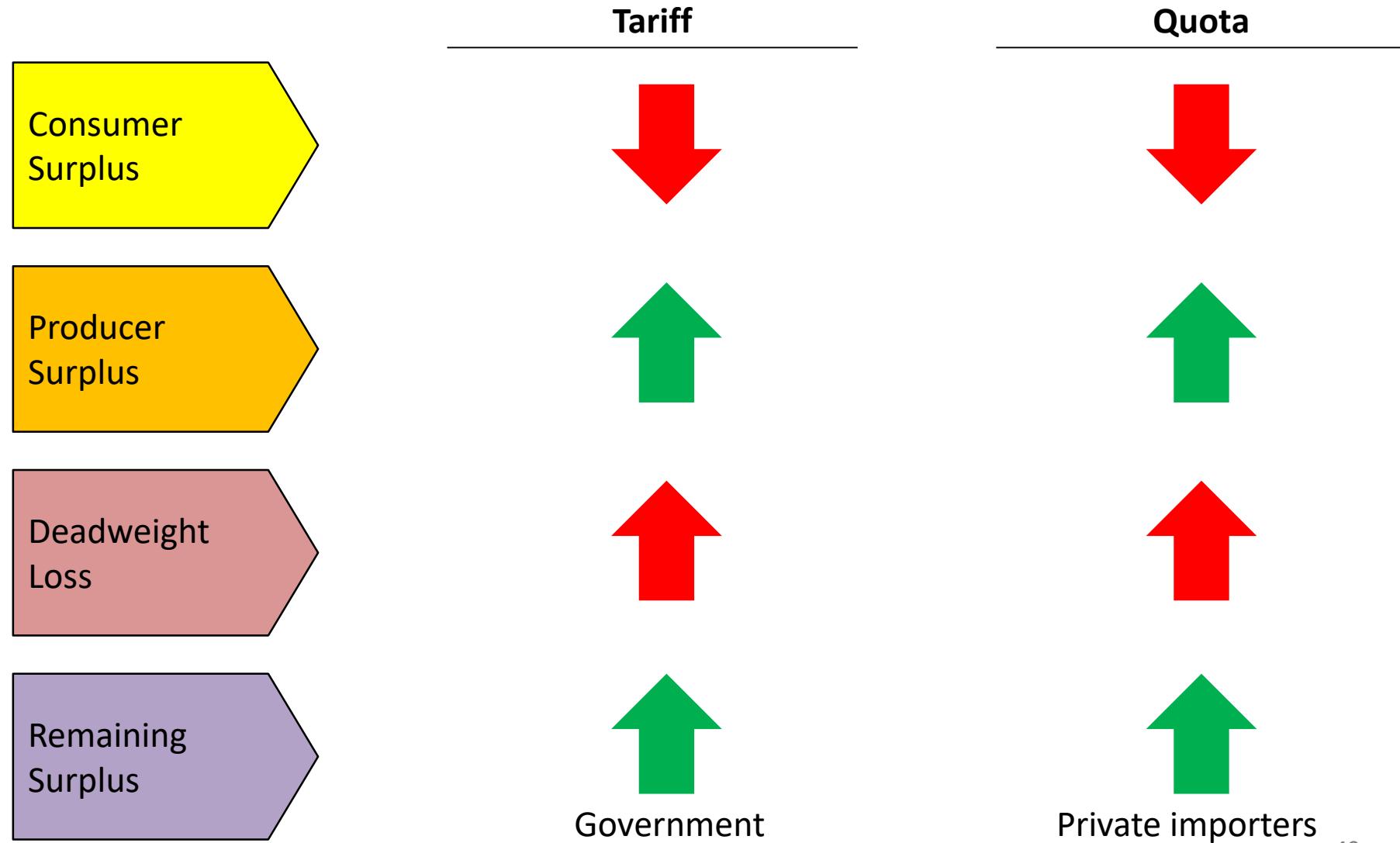
Quotas also create a deadweight loss relative to free trade

Supply and demand for grain in China

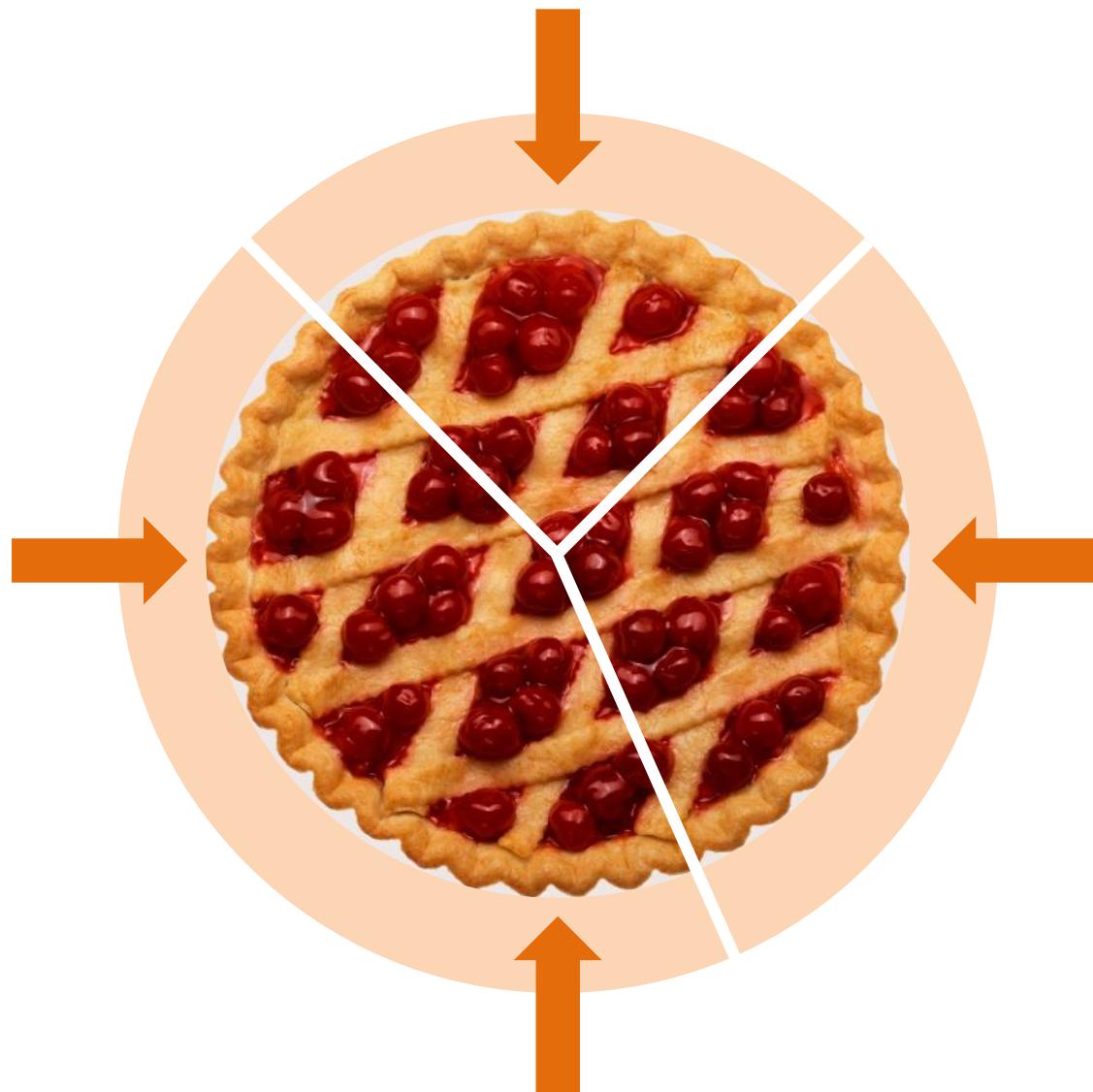


Both are bad but tariffs are better than quotas as the revenue goes to the gov't, which can be redistributed, rather than import license owners

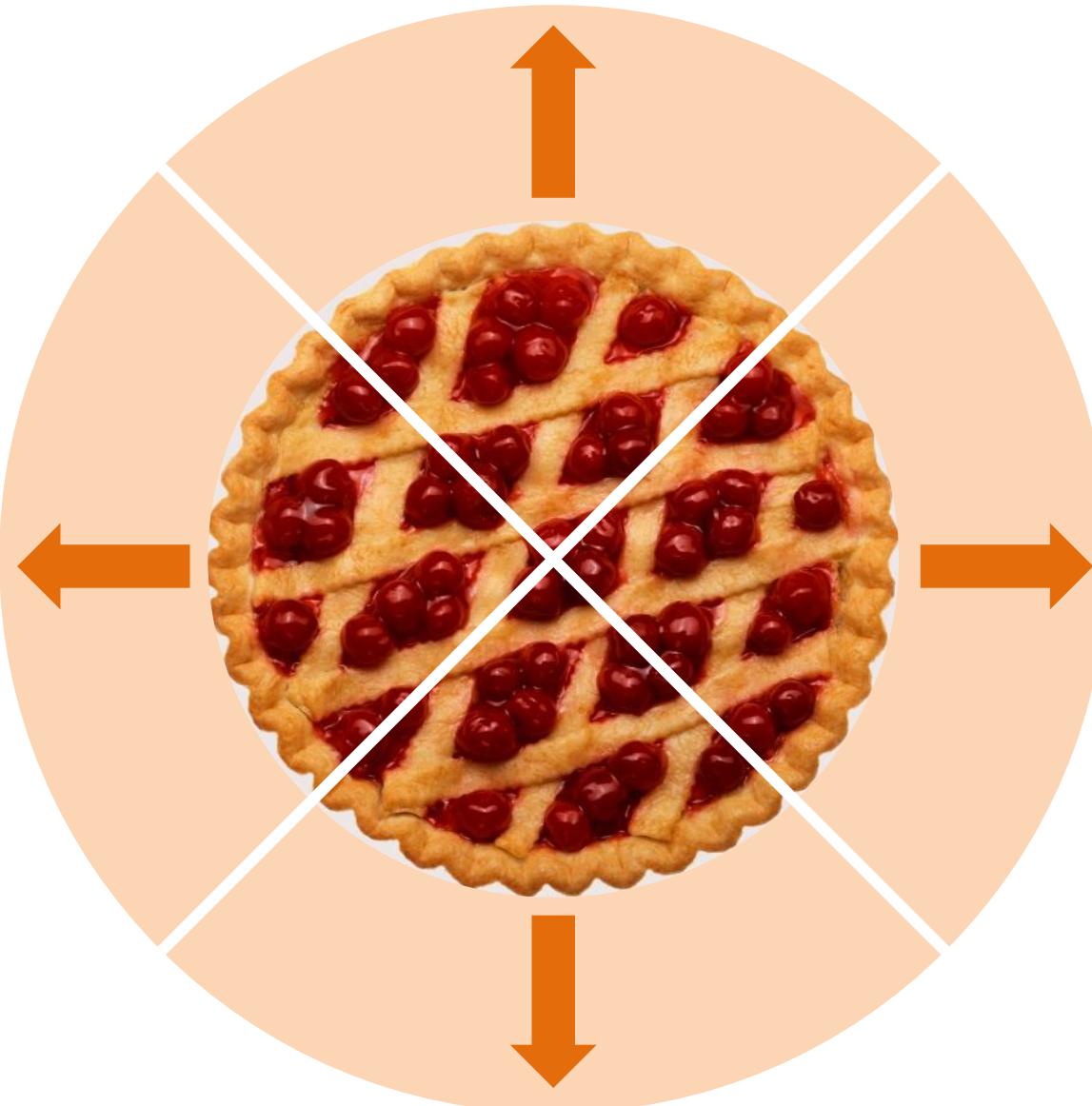
Changes relative to free trade



The deadweight loss means that protectionism (tariffs and quotas) shrink the overall size of the pie



It is better to use free trade to increase the size of the pie, and then use fiscal policy to share proceeds by compensating the losers



Summary

- A nation's PPC summarises the available points of efficient production by showing, when holding the production of all other commodities fixed, what is the maximum amount of a commodity that can be produced.
- In autarky, the consumption set comprises only those combinations of goods that can be produced.
- Under free trade, it is possible that the consumption set is expanded beyond what can be produced locally.
- There are always winners and losers from free trade.
- Protectionist measures such as tariffs and quotas can be justified if the winners are willing and able to compensate the losers.
- Empirical studies suggest that the free trade–environment nexus is complex, though most findings agree that pollution is lower in rich, open countries.

Chapter 15

Exchange rates and the open
economy

Learning Objectives

- 15.1 What is a nominal exchange rate?
- 15.2 What is the difference between fixed and floating exchange rates?
- 15.3 What is the difference between a nominal and a real exchange rate?
- 15.4 What assumptions underlie the purchasing power parity theory of exchange rates?
- 15.5 What factors determine the supply of dollars/demand for dollars in the international currency market?
- 15.6 How does a flexible exchange rate regime work?
- 15.7 How does a fixed exchange rate work?
- 15.8 What factors influence a country's choice of fixed or flexible exchange rates?

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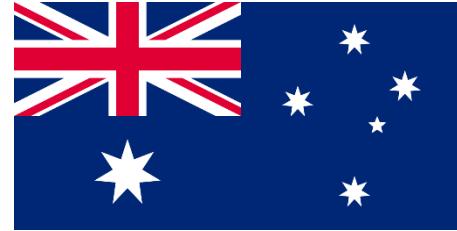
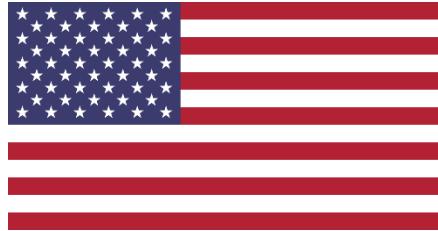
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5. Nominal exchange rates
6. Real exchange rates

The nominal exchange rate is the amount of one currency that people are willing to exchange for another

CURRENCY		BELI BUYING	JUAL SELLING
UNITED STATES BESAR	USDB	96 15	96 4
UNITED STATES KECIL	USDK	9565	962
UNITED STATES \$1	USD\$1	9875	957
USD TRAVEL CHECK	USDT	9400	8888
EURO	EUR	130 75	1305
AUSTRALIAN DOLLAR	AUD	8965	88700
SINGAPORE DOLLAR	SGD	8560	88658
JAPANESE YEN	JPY	9350	88945
HONGKONG DOLLAR	HKD	1235	124

Each exchange rate are typically quoted as a pair, describing the price of one unit of the base currency in terms of the other



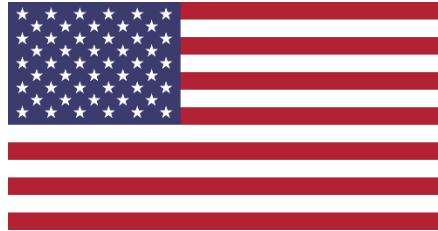
USD 0.76 = AUD 1.00

(base currency)

USD 1.00 = AUD 1.32

(base currency)

An easy way to remember what they mean is if you treat the base currency like a loaf of bread

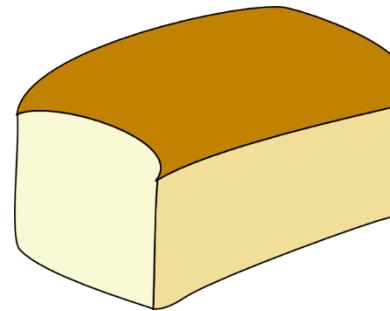


Loaf more expensive
(price appreciates)



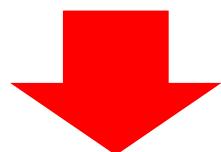
USD 0.76

=



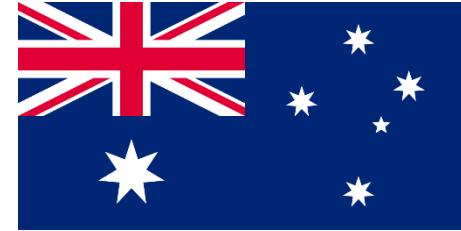
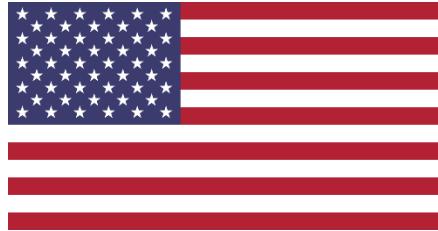
1 loaf

(base currency)



Loaf cheaper
(price depreciates)

If the base currency is worth more, then it “appreciates”. If it is worth less, then it “depreciates”



AUD more expensive
(price appreciates)

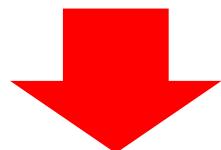


USD 0.76

=

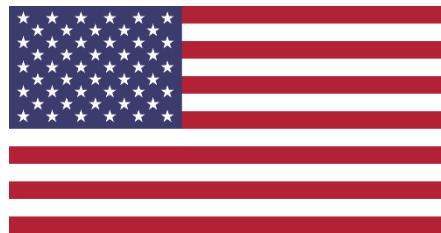
AUD 1.00

(base currency)



AUD cheaper
(price depreciates)

An depreciation is when the base currency is worth less



USD / AUD Exchange Rate

(base currency on denominator)

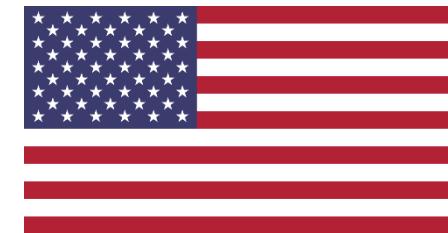


It can be confusing, you need to pay attention to the way the exchange rate is quoted.



AUD / USD Exchange Rate

(base currency on denominator)



While Australia's exchange rate is flexible, Saudi Arabia's is fixed



SAR / USD Exchange Rate

(base currency on denominator)



Trading volume:

..And China's is managed

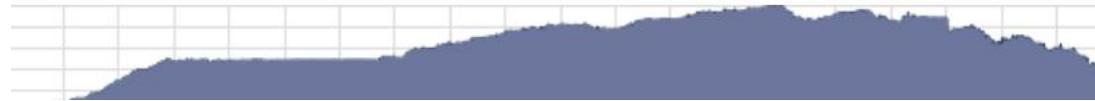


CNY / USD Exchange Rate

(base currency on denominator)



Trading volume:



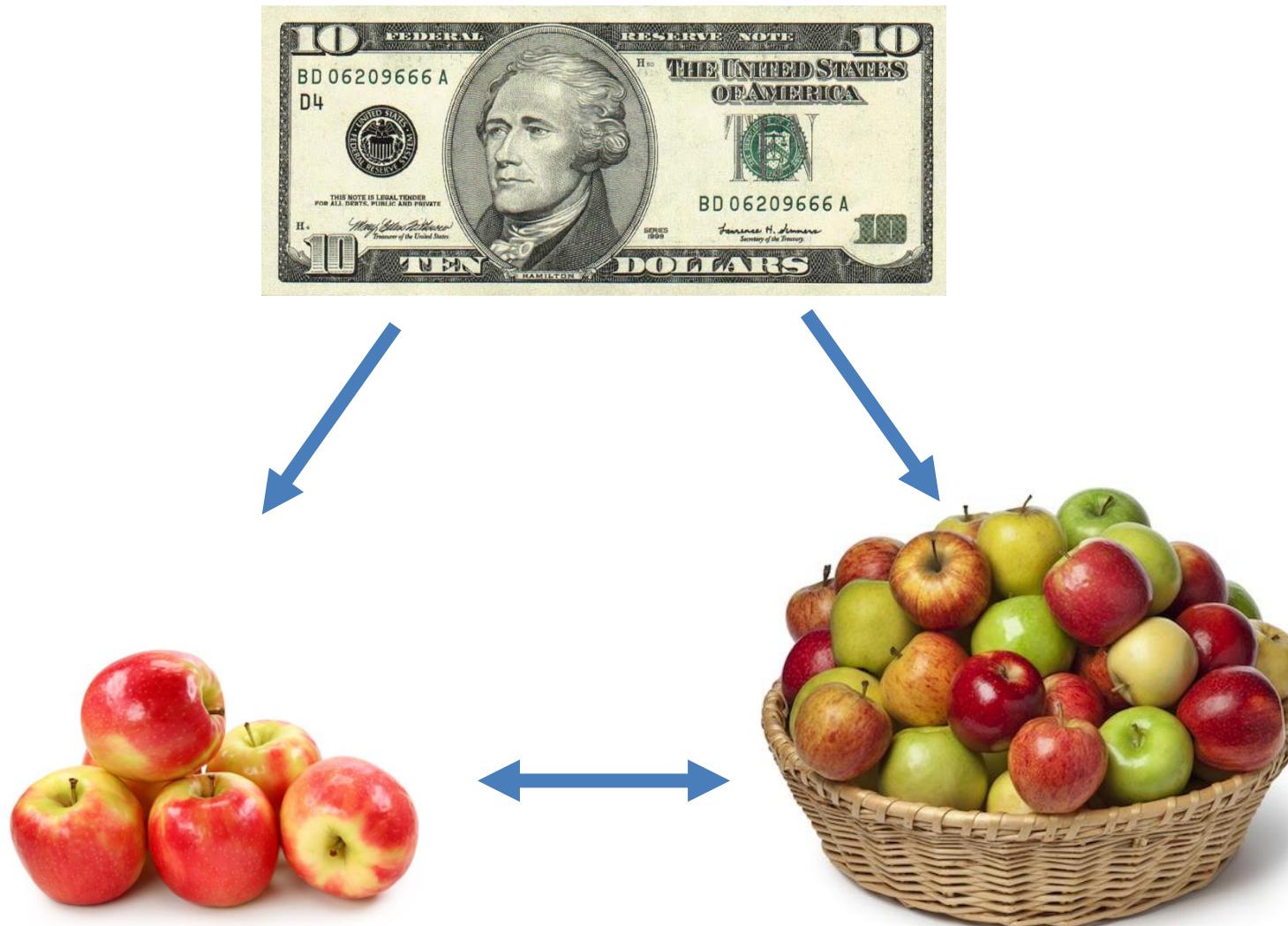
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While the nominal exchange rate is how much foreign currency you can buy. The real exchange rate is how much foreign stuff you can buy.



The real exchange rate is the ratio of the domestic price level to the foreign price level converted to domestic dollars.

Real Exchange Rate

Domestic price level

RER

=

$$\frac{P}{P^f/e}$$

*Foreign
price level*

*Nominal exchange
rate
(Foreign/Domestic)*

When the RER is high,
domestic goods are more
expensive

For example, let us compare the price of a computer in Australia and Japan.

Example: An Australian-made computer costs \$2400 and a very similar Japanese computer costs ¥242 000.

The exchange rate is ¥110 = \$1.

$$\text{RER} = \frac{\text{Price in dollars}}{\text{Price in yen / yen-dollar exchange rate}}$$

$$\text{RER} = \frac{\$2400}{¥242\,000 / ¥110}$$

$$\text{RER} = \frac{\$2400}{\$2200}$$

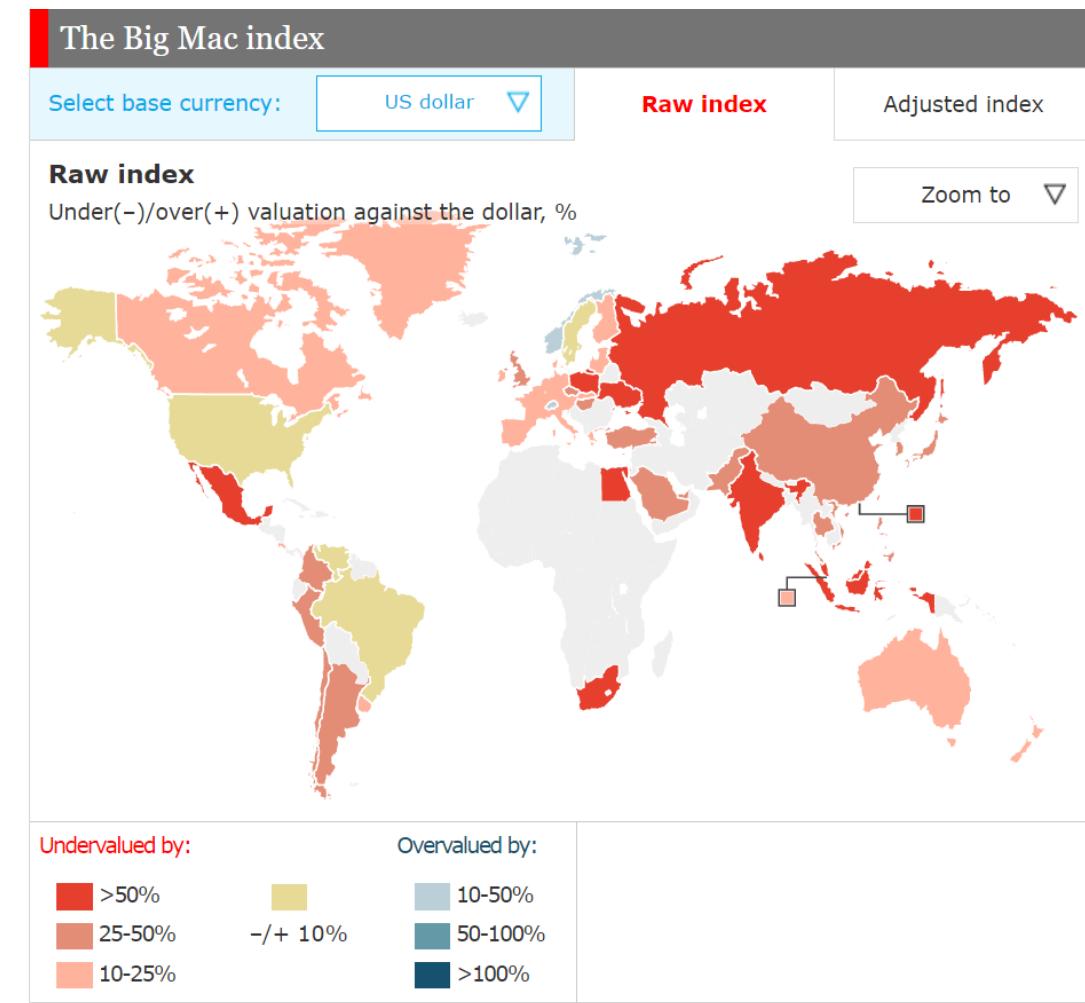
$$\text{RER} = 1.09$$

Where are computers more expensive?

The Economist annually reports a “Big Mac Index” to compare the real exchange rate across countries, as Big Macs are the same everywhere



Includes a good mix of traded
and non-traded inputs,
services/manufacturing
/agriculture, etc



Source: <http://www.economist.com/content/big-mac-index>

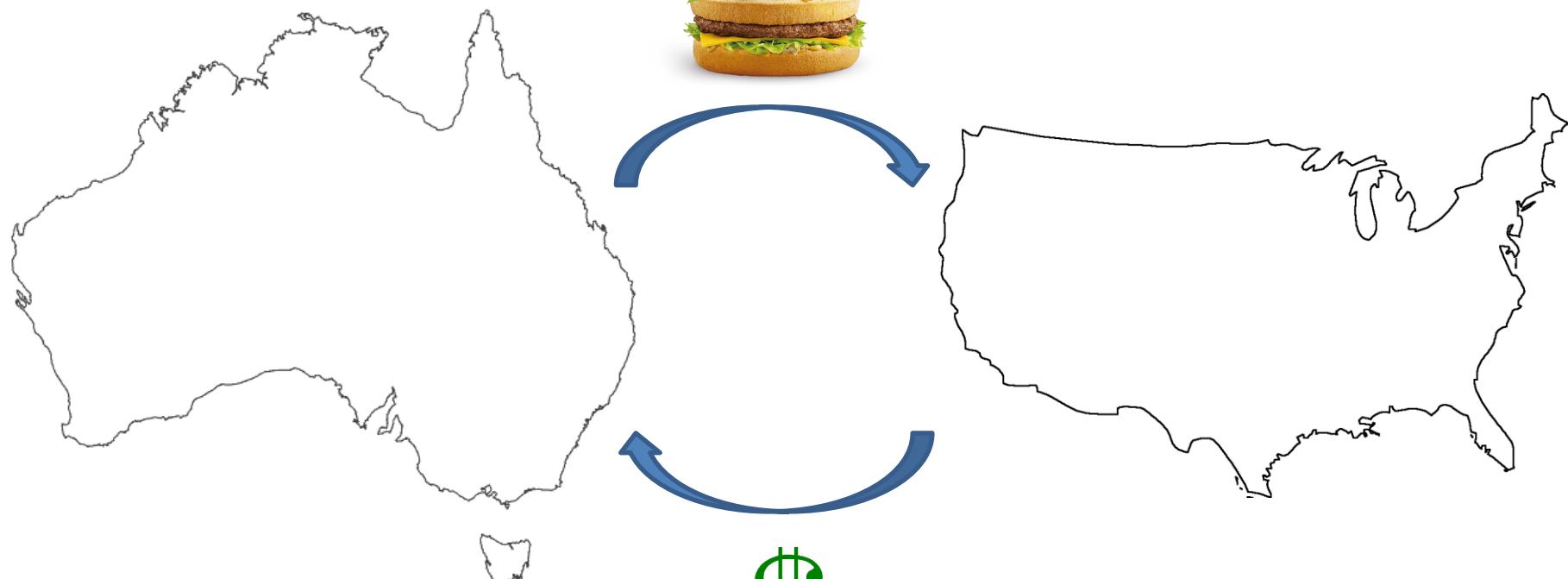
The Law of One Price says that, in the long run, the price of internationally traded goods should be the same everywhere ($RER=1$)



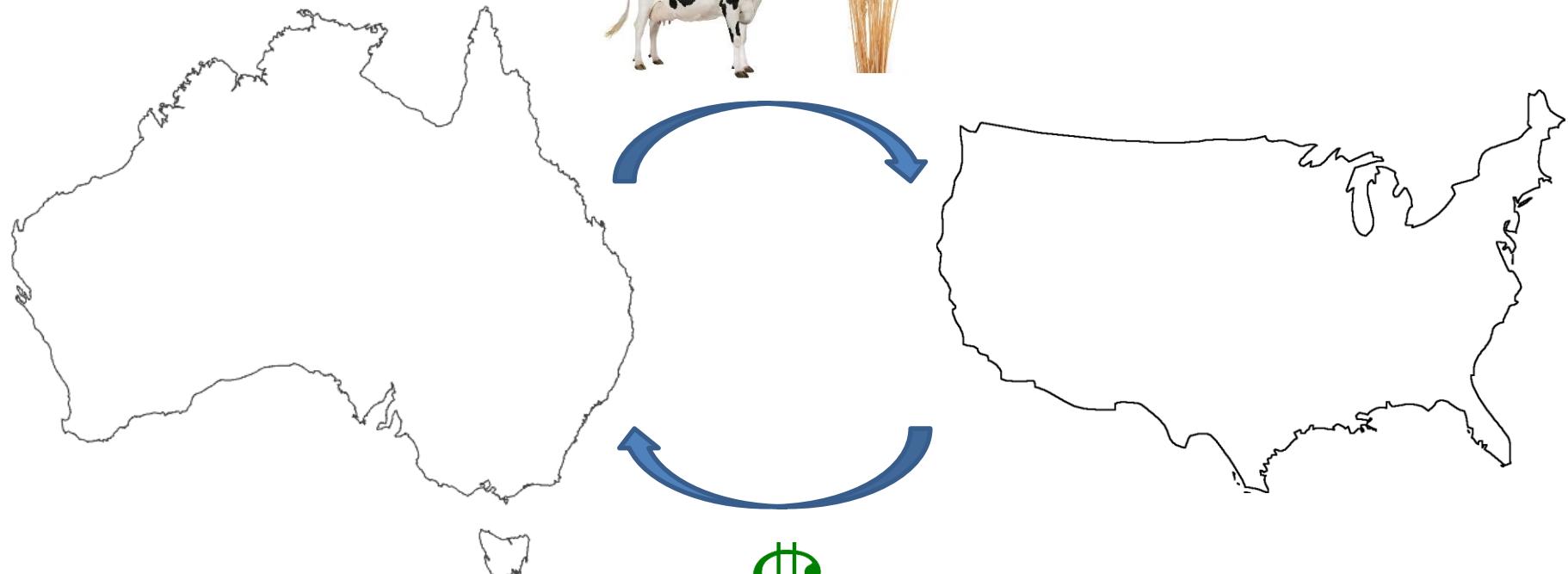
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The reason why the “law” of one price would hold is because, if it didn’t, you could buy a burger in the US, sell it in Australia (arbitrage), and profit



....or, if not a burger, then at least trade the components of the burger, like cows, wheat, and workers



However, even then the law of one price won't hold because some goods and services can't be traded, and vary in quality

Haircuts are difficult to trade....



...and vary in quality



“Purchasing power parity” is the theory that the nominal exchange rate will adjust so that the law of one price holds

Example



If the price of a bushel of wheat costs A\$5 in Sydney and 150 rupees in Mumbai, the exchange rate would be:

$$\begin{aligned} \text{A\$5} &= 150 \text{ rupees} \\ \text{A\$1} &= 30 \text{ rupees} \end{aligned}$$

PPP says that inflation should cause the nominal exchange rate to adjust, so PPP holds again. In practice it does via monetary policy

Example...continued



If India experiences inflation and the price of a bushel of wheat increases to 300 rupees in Mumbai, the exchange rate would be:

$$A\$5 = 300 \text{ rupees}$$

$$A\$1 = 60 \text{ rupees}$$

To be continued next lecture