Lecture 7(ii) Announcements

Debates in sections this week

Lecture

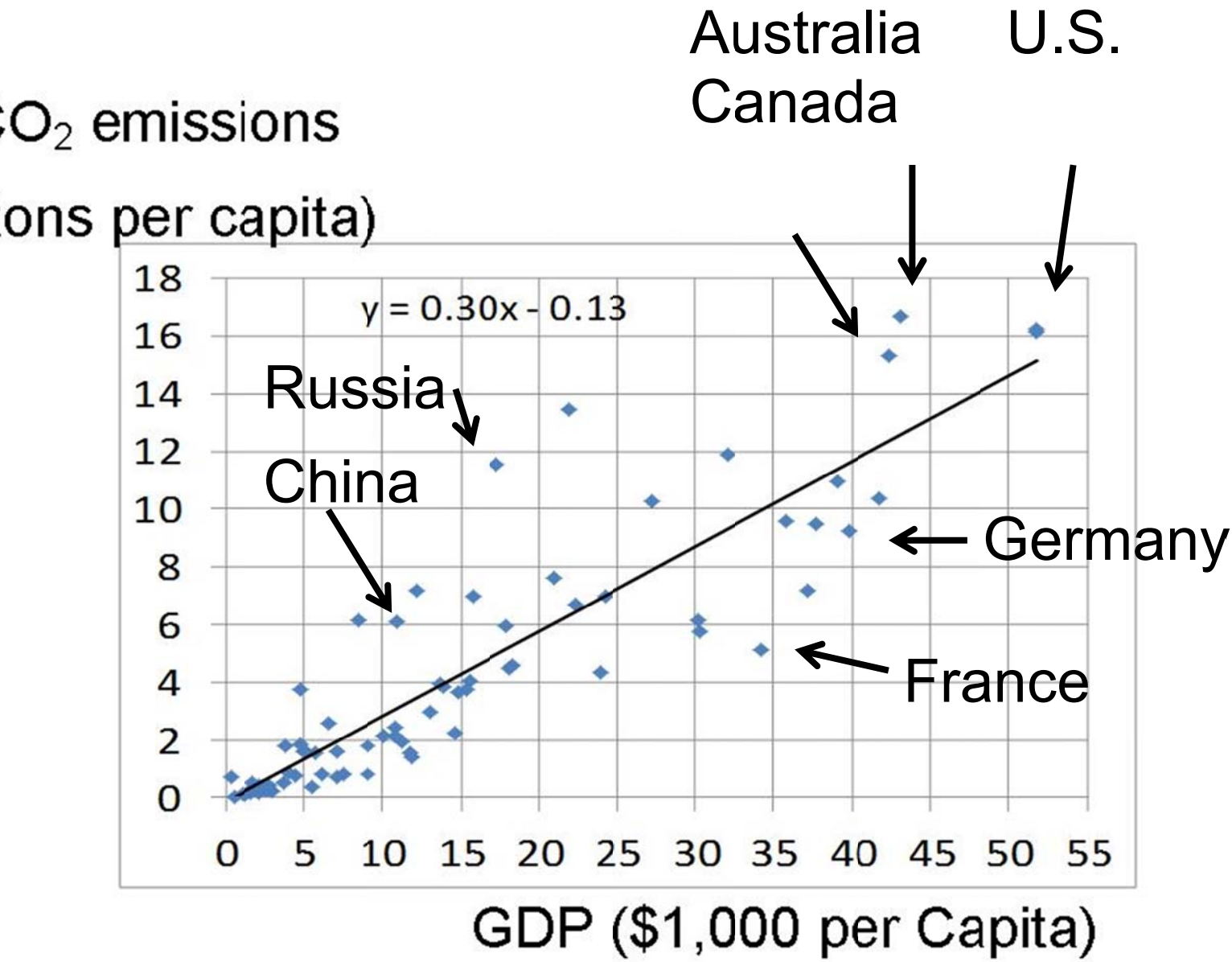
1. Carbon Emissions and Income
(Graph from Homework 5)

2. Tariffs and Import Quotas with Perfect Competition in the World Economy

3. New graph:
Production Possibility Frontier

4. A Gain from Trade:
Comparative Advantage

Graph from Homework 5



Can figure out your carbon footprint at

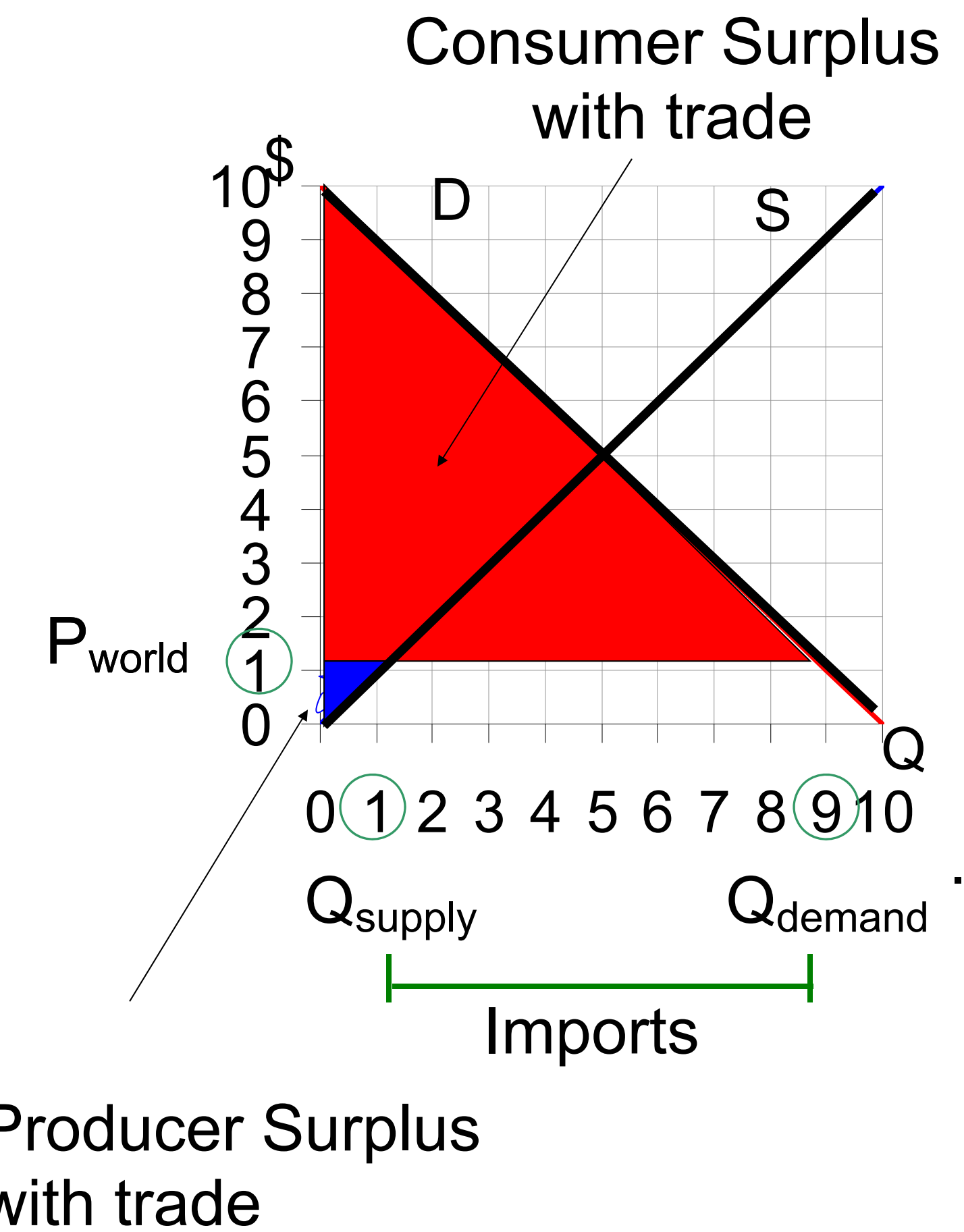
http://www.epa.gov/climatechange/ghgemissions/ind-calculator.html

Go back to free-trade in widgets, when:

$$P_{World} = 1$$

Last class: we looked at a complete ban in imports.

Today: look at tariffs and quotas


Consumer Surplus
with trade
$
10
9
8
7
6
5
4
3
2
1
0
D
S
P world
Q
0 1 2 3 4 5 6 7 8 9 10
Q supply
Q demand
Imports
Producer Surplus
with trade

Table

	Free Trade	Tariff $2	Change
P	1		
Q_{prod}	1		
Q_{con}	9		
Imports	8		
CS	40.5		
PS	.5		
Gov S	0		
TS (Econland)	41		

Now suppose there is a tariff of $2.

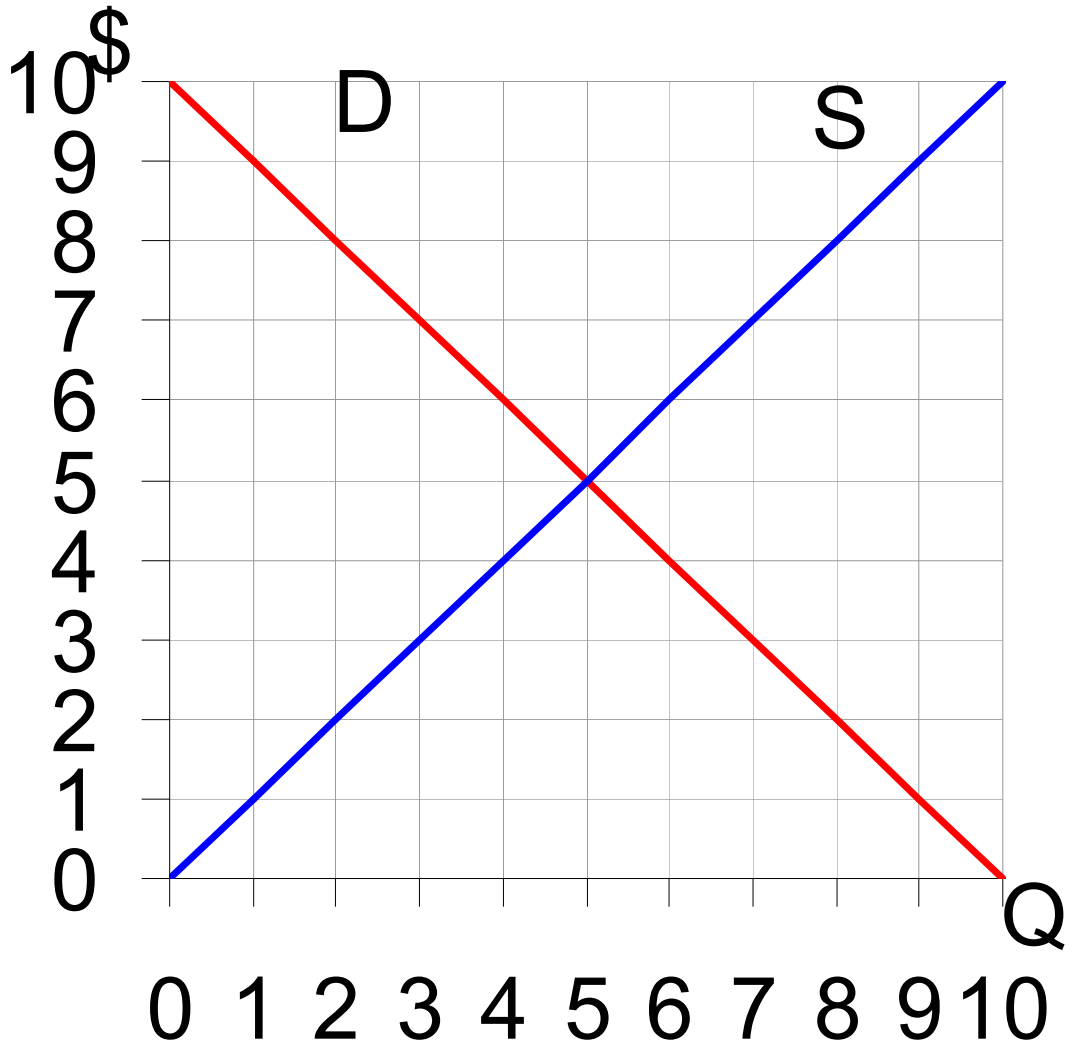
A tariff is a tax that is imposed on imports, but not domestic production. (For example, there is a large tariff on orange juice, 29 cents a gallon, that limits entry of Brazilian orange juice in the U.S.)

Pickup trucks: tariff is 25 percent

What happens?

If P_{World} = 1 and the tariff is \$2, the price in Econland will be....

Impact of $2 Tariff When P_{World} = 1



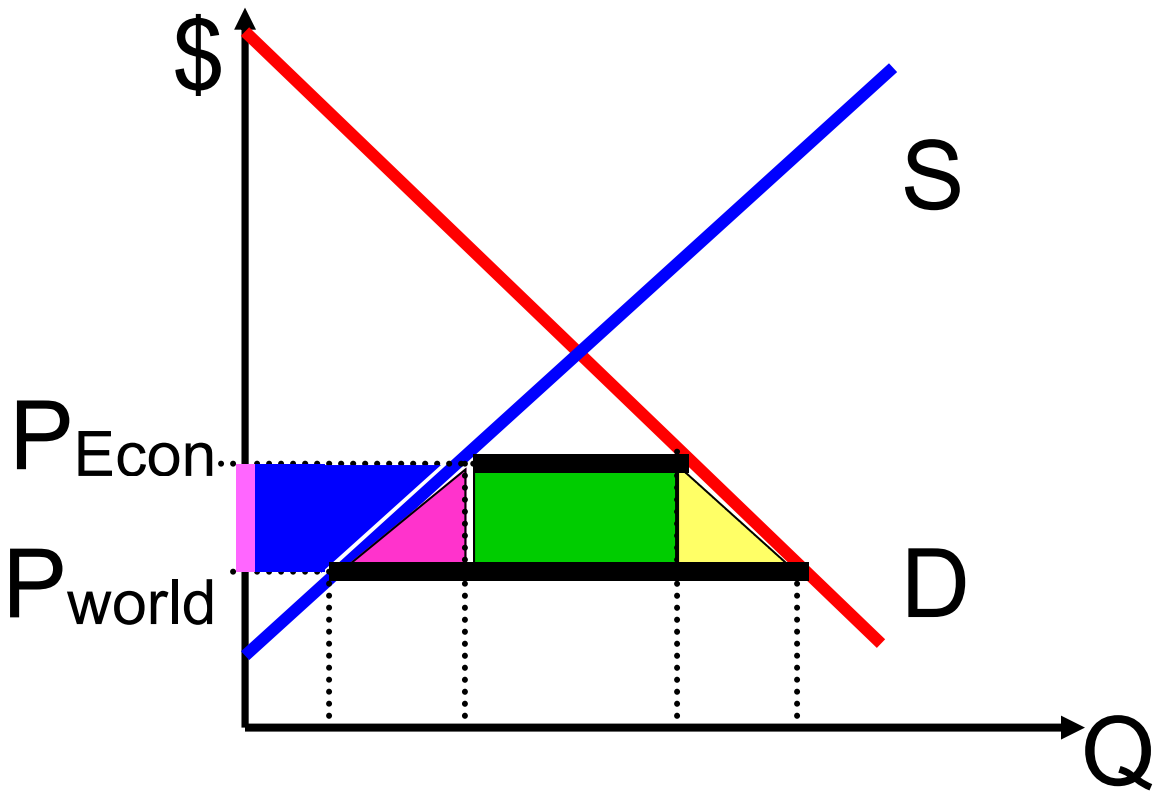
Table

	Free Trade	Tariff $2	Change
P	1	3	+2
Q_{prod}	1	3	+2
Q_{con}	9	7	-2
Imports	8	4	-4
CS	40.5	24.5	-16
PS	.5	4.5	+4
Gov S	0	8	+8
TS (Econland)	41	37	-4

Suppose a quota instead of a tariff It is a limit on how many imports can come in. (Just like the quota limited milk production in Canada).

For example, there are sugar quotas limiting the import of sugar into the U.S.

Review in Nicer Pictures: Economic Impact of Tariff in Econland (Perfect Competition in the World Economy)



Imports with tariff

Imports free trade

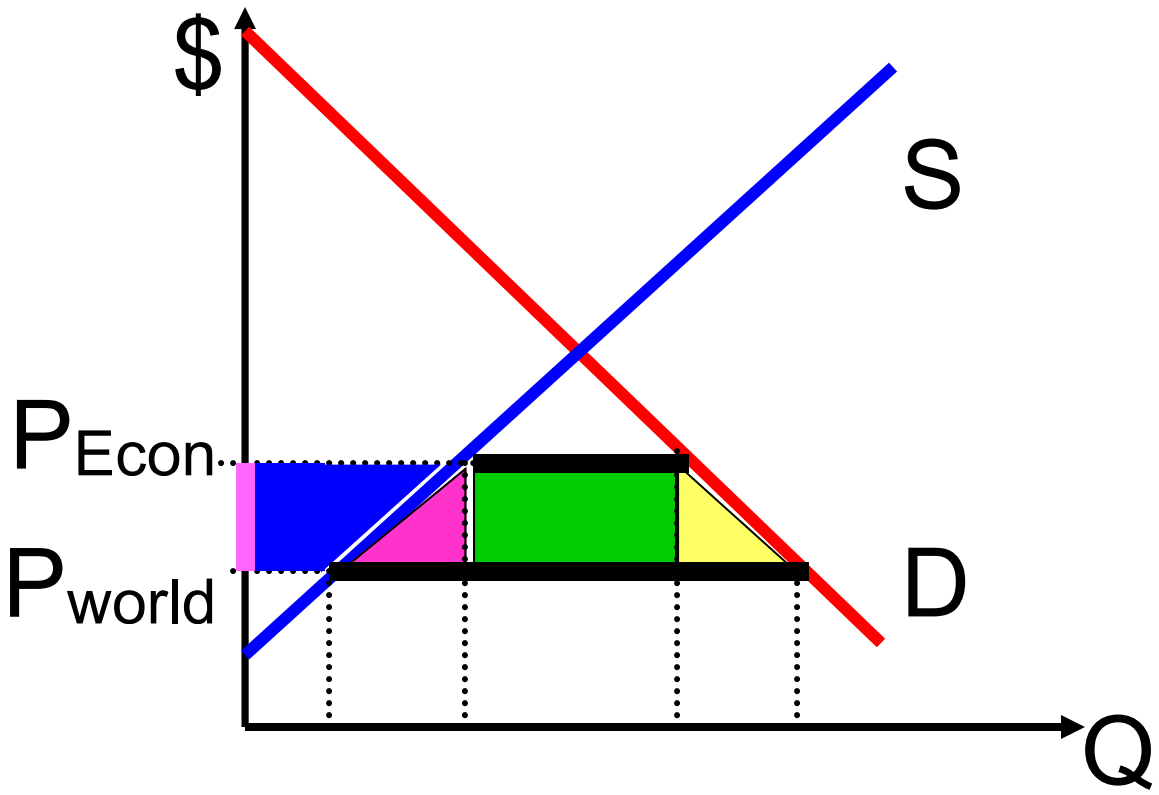
tariff

$$P_{Econ} = P_{World} + \text{tariff}$$

Effects of the Tariff

ΔCS (minus)	
ΔPS (plus)	
ΔGS (plus) (tariff revenue)	
ΔTotal Econland Surplus (minus)	
Breakdown	
Q_{con} too small	
Q_{prod} too big	

Economic Impact of Quota in Econland



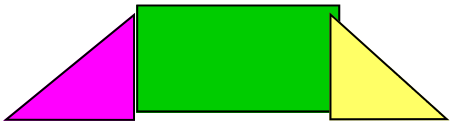
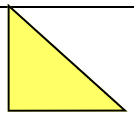
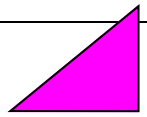
Quota

Imports free trade

what quota would

$P_{Econ} = P_{World}$ + tariff

Effects of the Quota,same as tariff except green box goes abroad

ΔCS (minus)	
ΔPS (plus)	
ΔGS	zero
ΔTotal Econland Surplus (minus)	
Breakdown	
Q_{con} too small	
Q_{prod} too big	
transfer to foreigners	

Bottom Line

Econland competing in a perfectly competitive global economy is better off overall from free trade in widgets.

Not a Pareto improvement

- Consumers (D people) are better off with free trade
- But the S people (the suppliers) are worse off.

What is the example of a real world market where this analysis capture the main issues?

Sugar

Because of quotas

- Price in US twice what it is in rest of the world
- So consume less (e.g., don't use it to sweeten soft drinks like the rest of the world.

Suppose open up to free trade.

- Analysis shows on net U.S. ahead.
- Workers in sugar industry will lose jobs. So are worse off if get rid of quotas and do nothing else.
- But with a bigger pie, it is possible to compensate them.
  - Can help them out by paying for retraining for another job.
  - Trade Adjustment Assistance (Federal program to ease pain.) http://www.taacenters.org/

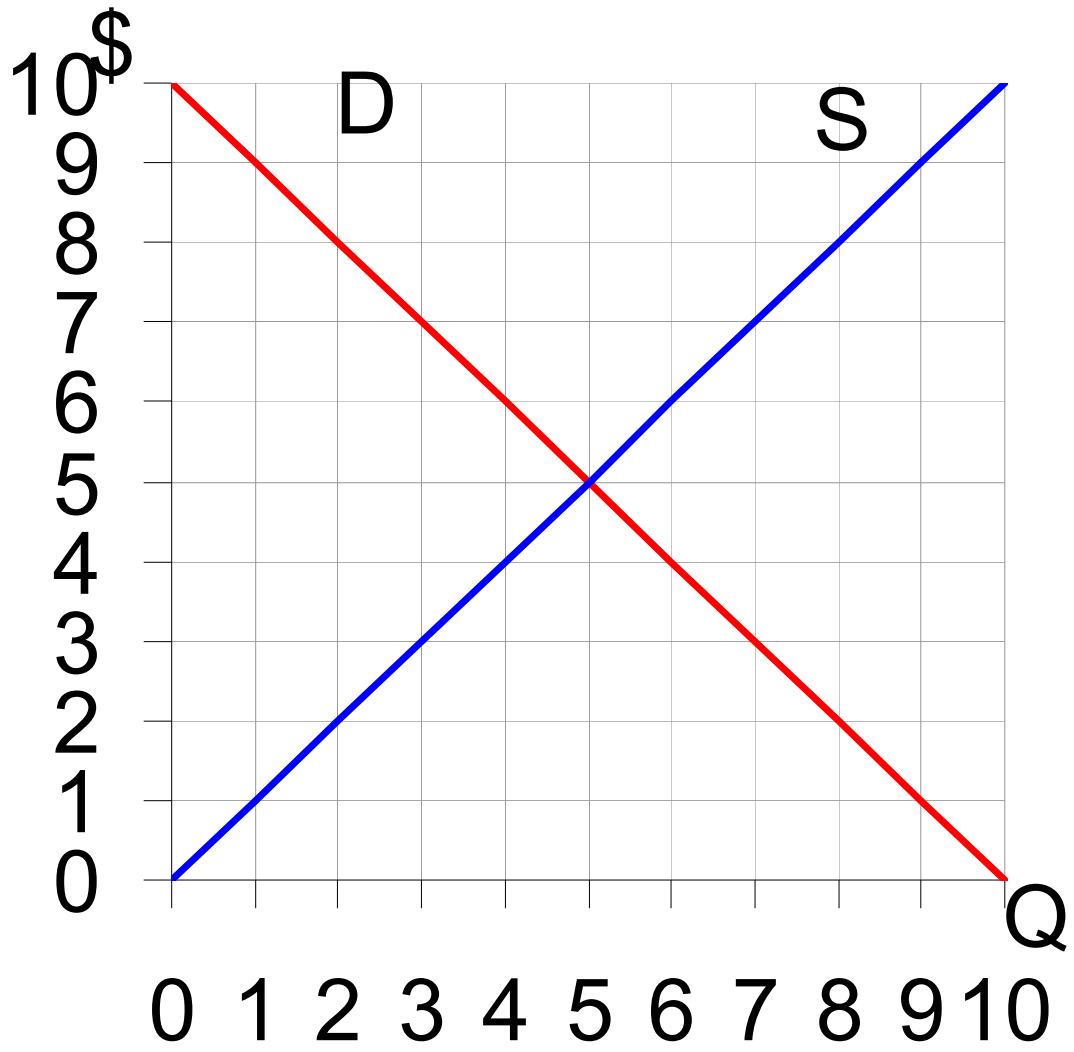
And if you want to talk about jobs?

What about the jobs in industries like candy which use sugar as in input?

With free trade in candy from the North American Free Trade Agreement (NAFTA), it makes sense to shut down candy factories here, build them in Mexico or Canada where sugar is cheap, then import the candy in to the U.S. from there, tariff free. (Sugar has a different deal in NAFTA than candy).

By the way, in June 2012, the Senate considered getting rid of the program, but it was voted down. (with Minnesota's two senators voting against. See http://www.startribune.com/business/158990485.html?refer=y

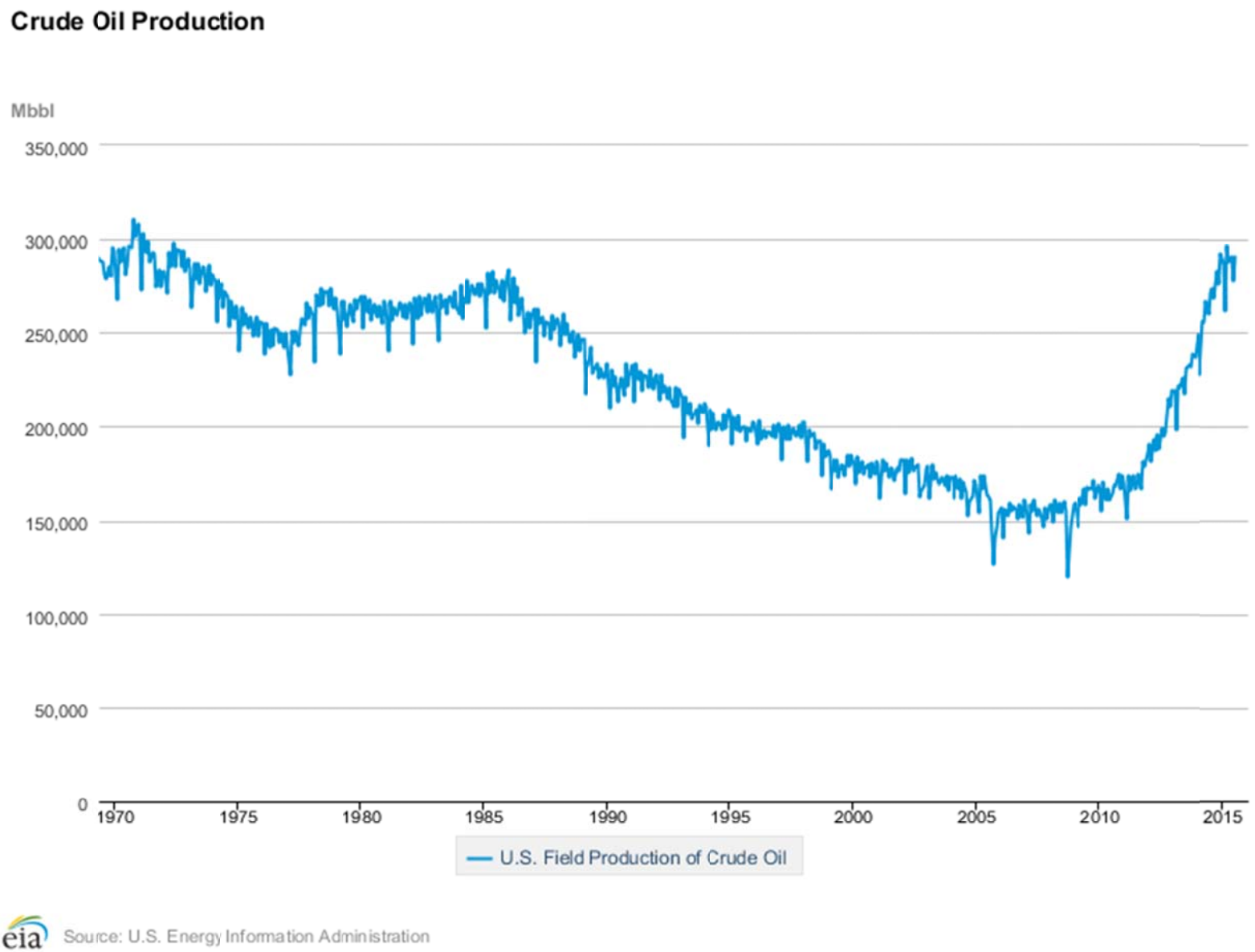
What about effects of an export ban? when $P_{World} = 7$



Who benefits?

Example: Controversy in U.S. regarding export ban on oil.

Since the 1970s, we have a ban on exports of oil. Hasn't been relevant, until very recently. Here is what monthly crude production looks like



US is still a net importer.
The issue is that there are different types of crude, and different kinds of refineries are designed for different grades of oil.

With free trade, US oil producers can get top $. With banning of exports, excess supplies of particular grades of oil can depress prices.

Refineries think the ban on exports is great and want to keep it.

THE CRUDE COALITION

Production Possibility Frontier

Shows different production combinations available to society.

Do a simple example.

Robinson Crusoe.
(Classic novel by Daniel Defoe, 1719)

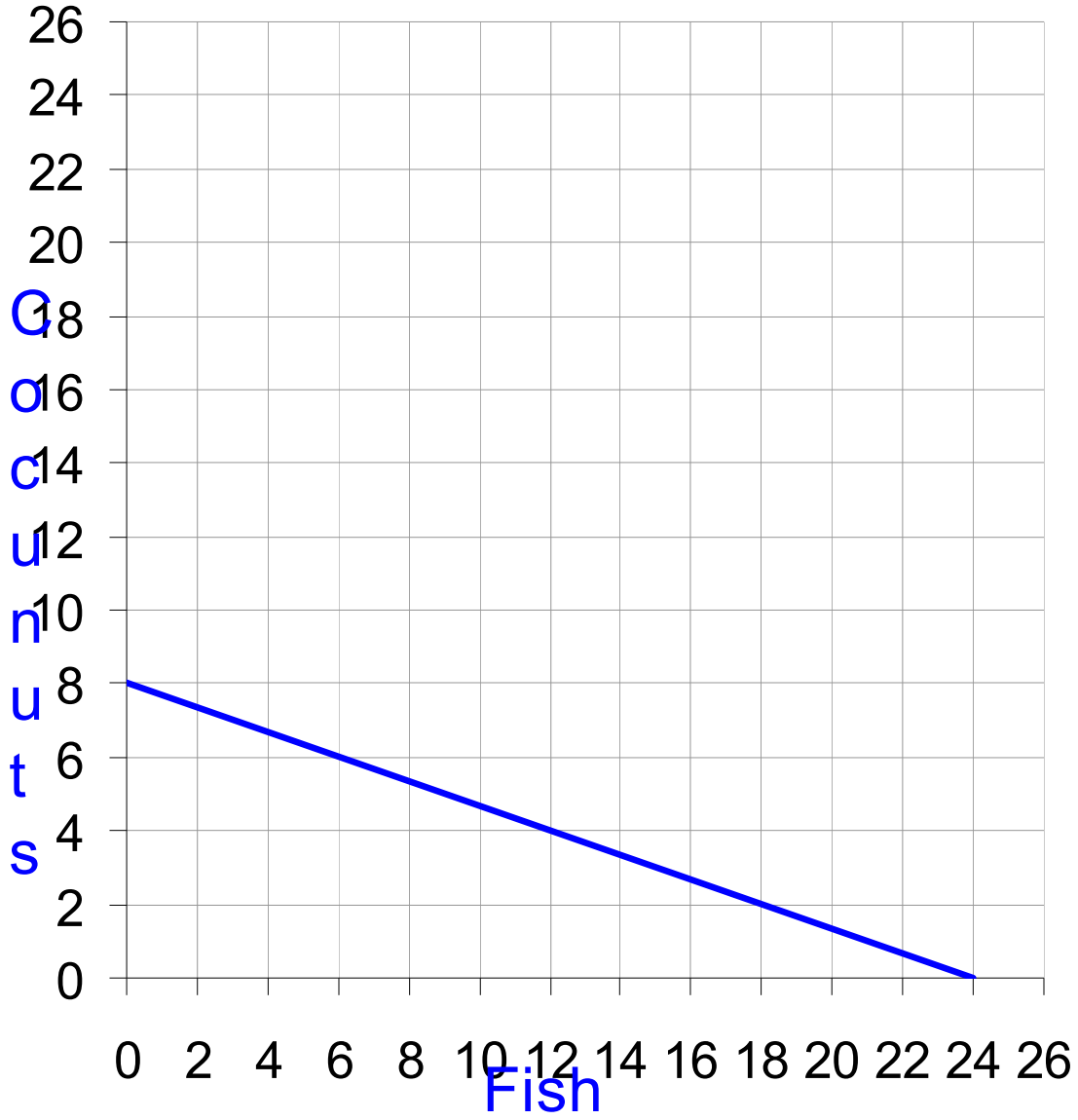
Works 8 hours a day.

In an hour, can catch 3 fish
or pick1 coconut.
If work all day on fish, catch 24.
If work all day picking coconuts, pick 8.

Production Possibilities

Hours Fish	Hours Coconut	Q Fish	Q Coconut
8	0	24	0
4	4	12	4
0	8	0	8

Production Possibility Frontier for Robinson Crusoe



Slope: =1/3

Opportunity Cost of one more fish (in terms of coconuts)

Can think about this for production possibilities for society as a whole.

Guns and Butter
(10,100,000 google hits)

(Stadiums and K12 Education, etc, etc.)

Back to Robinson Crusoe.

Suppose autarky (no trade, on his own).

We will talk about choice next week. But let's say he decides to work half on each.

Production point and consumption point
produce, consume 12 fish
produce, consume 4 coconuts

3. Comparative Advantage and International Trade

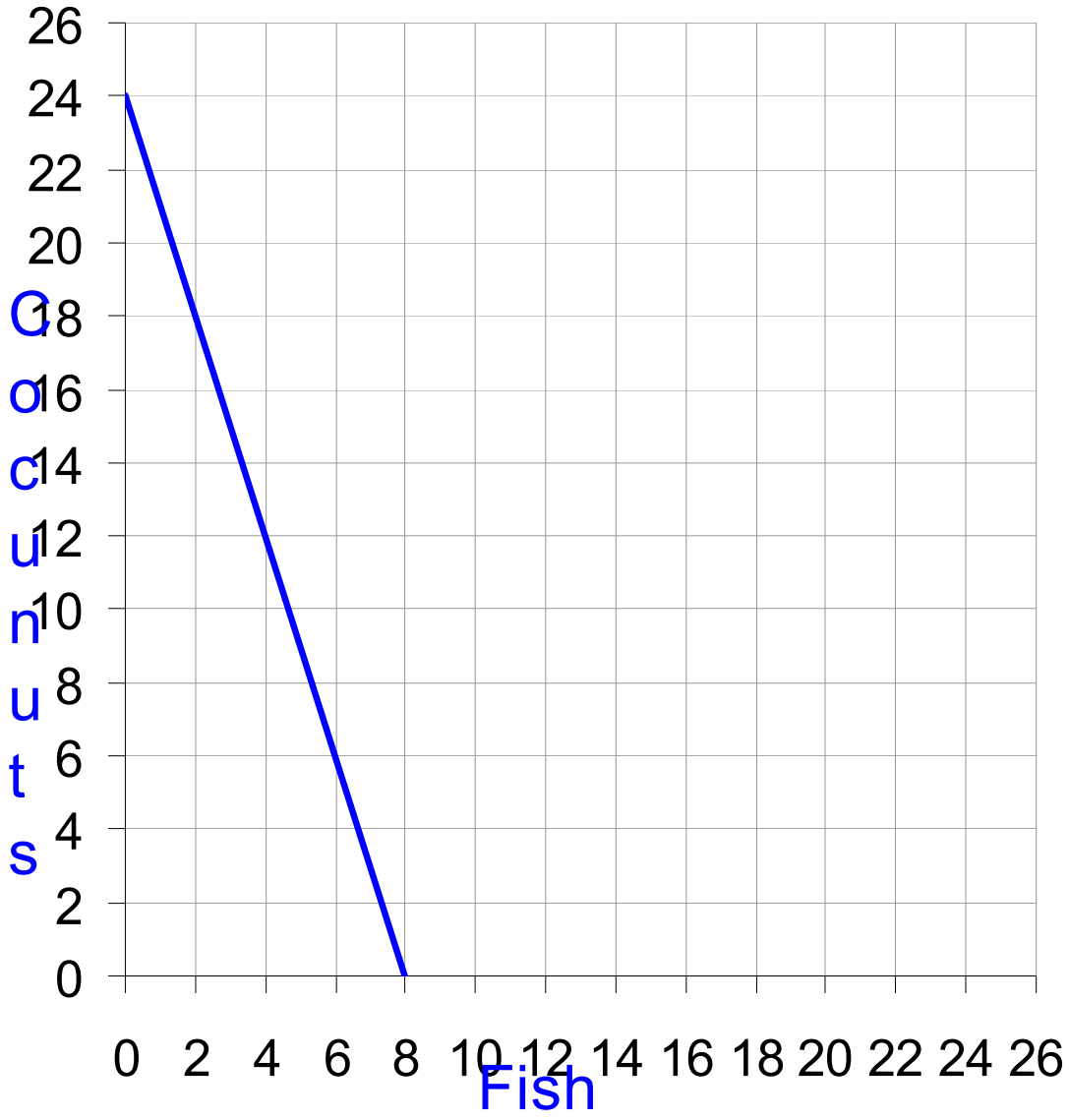
Suppose another person named Friday lives on a neighboring island

Friday works only 2 hours a day.
In one hour, can collect 12 coconuts or 4 fish.

Remember: Crusoe can catch 3 fish or pick one coconut in an hour.

So Friday has an absolute advantage at both jobs compared to Robinson Crusoe in terms of productivity per hour.

Friday's PPF



Slope = 3. Opportunity cost of fish in terms of coconuts

Opportunity cost of fish:

for Robinson: 1/3 coconuts
for Friday: 3

Robinson has a lower opportunity cost.

Robinson has a **comparative advantage** in fish.

Friday has a **comparative advantage** in coconuts.

Next class: we will see gains from trade based on comparative advantage.