Recitation 8 (Section 010)

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University of Minnesota

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Today's Agenda

- Anouncements
- Review Questions
  - Ch. 3: Interdependence & the Gains from Trade
  - Ch. 9: International Trade

Q1: Absolute Advantage

Ana and Ben each work 8 hours a day making shirts and cakes.

	Hours to make 1		**Max in 8 hours**	
	Shirt	Cake	Shirts	Cakes
Ana	1	2		
Ben	4	4		

1. Fill in the last two columns.
2. Who has the absolute advantage in shirts? In cakes?

Q1: Absolute Advantage

Ana and Ben each work 8 hours a day making shirts and cakes.

	Hours to make 1		**Max in 8 hours**	
	Shirt	Cake	Shirts	Cakes
Ana	1	2	8	4
Ben	4	4	2	2

1. Fill in the last two columns.
2. Who has the absolute advantage in shirts? In cakes?

Answer: Ana has the absolute advantage in **both** goods: she needs fewer hours for each one.

Q2: Opportunity Cost & Comparative Advantage

Using the same numbers (Ana: 1 hr/shirt, 2 hrs/cake; Ben: 4 hrs/shirt, 4 hrs/cake):

1. What is each person's opportunity cost of 1 shirt? Of 1 cake?
2. Who has the comparative advantage in shirts? In cakes?
3. Who should specialize in what?

	OC of 1 shirt	**OC of 1 cake**
Ana		
Ben		

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2. Who has the comparative advantage in shirts? In cakes?
3. Who should specialize in what?

	OC of 1 shirt	**OC of 1 cake**
Ana	$\frac{1}{2}$ cake	2 shirts
Ben	1 cake	1 shirt

Answer: Ana has the comparative advantage in **shirts** ($\frac{1}{2} < 1$); Ben has it in **cakes** ($1 < 2$). Ana should make shirts, Ben should make cakes, even though Ana is better at both.

Q3: The Price of Trade

Ben will trade cakes to Ana in exchange for shirts. Which of these deals would *both* of them accept? Explain.

1. 1 cake for $\frac{1}{2}$ shirt
2. 1 cake for $1\frac{1}{2}$ shirts
3. 1 cake for 3 shirts

Q3: The Price of Trade

Ben will trade cakes to Ana in exchange for shirts. Which of these deals would *both* of them accept? Explain.

1. 1 cake for $\frac{1}{2}$ shirt
2. 1 cake for $1\frac{1}{2}$ shirts
3. 1 cake for 3 shirts

Answer: Only **(2)**. The price of a cake must lie between the two opportunity costs: between 1 shirt (Ben's cost) and 2 shirts (Ana's cost). In (1) Ben gets less than his cost of 1 shirt, so he refuses. In (3) Ana pays more than her cost of 2 shirts, so she refuses.

Q4: Gains from Specialization and Trade

Without trade: Ana splits her day evenly (4 hrs on each good); so does Ben.

1. What does each person produce and consume? What is total output?

With trade: Ben makes only cakes. Ana spends 2 hours on cakes and 6 on shirts. Then Ben trades 1 cake to Ana for $1\frac{1}{2}$ shirts.

2. What is total output now?
3. What does each person consume? Is each better off?

Q4: Gains from Specialization and Trade

Without trade: Ana splits her day evenly (4 hrs on each good); so does Ben.

1. What does each person produce and consume? What is total output?

With trade: Ben makes only cakes. Ana spends 2 hours on cakes and 6 on shirts. Then Ben trades 1 cake to Ana for $1\frac{1}{2}$ shirts.

2. What is total output now?
3. What does each person consume? Is each better off?

Answer: (1) Ana: 4 shirts, 2 cakes. Ben: 1 shirt, 1 cake. Total: 5 shirts, 3 cakes.
(2) Ana makes 6 shirts and 1 cake, Ben makes 2 cakes. Total: **6 shirts**, 3 cakes. Specialization adds a shirt.
(3) Ana: $6 - 1\frac{1}{2} = 4\frac{1}{2}$ shirts, 2 cakes ($+\frac{1}{2}$ shirt). Ben: $1\frac{1}{2}$ shirts, 1 cake ($+\frac{1}{2}$ shirt). **Both gain.**

Q5: True or False?

Explain each answer.

1. If one person has the absolute advantage in both goods, there are no gains from trade.
2. One person can have the comparative advantage in both goods.
3. Ana's opportunity cost of a cake is the inverse of her opportunity cost of a shirt.
4. Trade makes one person better off only at the expense of the other.

Q5: True or False?

Explain each answer.

1. If one person has the absolute advantage in both goods, there are no gains from trade.
2. One person can have the comparative advantage in both goods.
3. Ana's opportunity cost of a cake is the inverse of her opportunity cost of a shirt.
4. Trade makes one person better off only at the expense of the other.

Answer: (1) False: Ana has the absolute advantage in both, yet both gain (Q4). Gains come from *comparative* advantage. (2) False: if your OC of X is lower, your OC of Y (its inverse) must be higher. (3) True: $\frac{1}{2}$ cake per shirt $\Leftrightarrow$ 2 shirts per cake. (4) False: specialization makes the pie bigger, so both can be better off.

Q6: Who Exports?

Before trade, the domestic price of steel in Isoland is \$600/ton. The world price is \$450/ton.

1. Once trade opens, will Isoland import or export steel?
2. Who has the comparative advantage in steel: Isoland or the rest of the world?
3. What happens to the domestic price of steel?

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1. Once trade opens, will Isoland import or export steel?
2. Who has the comparative advantage in steel: Isoland or the rest of the world?
3. What happens to the domestic price of steel?

Answer: Domestic price $>$ world price, so Isoland **imports** steel. The rest of the world has the comparative advantage (lower opportunity cost). The domestic price **falls** to \$450.

Q7: Winners and Losers

Fill in the table: does each group gain or lose when a country opens up to trade?

	Exporting country	**Importing country**
Domestic consumers		
Domestic producers		
Total surplus		

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Fill in the table: does each group gain or lose when a country opens up to trade?

	Exporting country	**Importing country**
Domestic consumers	Lose	Gain
Domestic producers	Gain	Lose
Total surplus	Rises	Rises

Answer: In both cases the winners gain more than the losers lose, so total surplus rises. The gain is the triangle "D" between supply/demand and the world price.

Q8: Opening Up to Trade (Numbers)

Domestic demand for widgets is $Q^D = 100 - P$ and domestic supply is $Q^S = P - 20$.

1. Find the autarky price and quantity. Compute CS, PS, and total surplus.
2. The world price is $P^W = 40$. Find Q^D, Q^S, and imports.
3. Compute CS, PS, and total surplus with free trade. What are the gains from trade?

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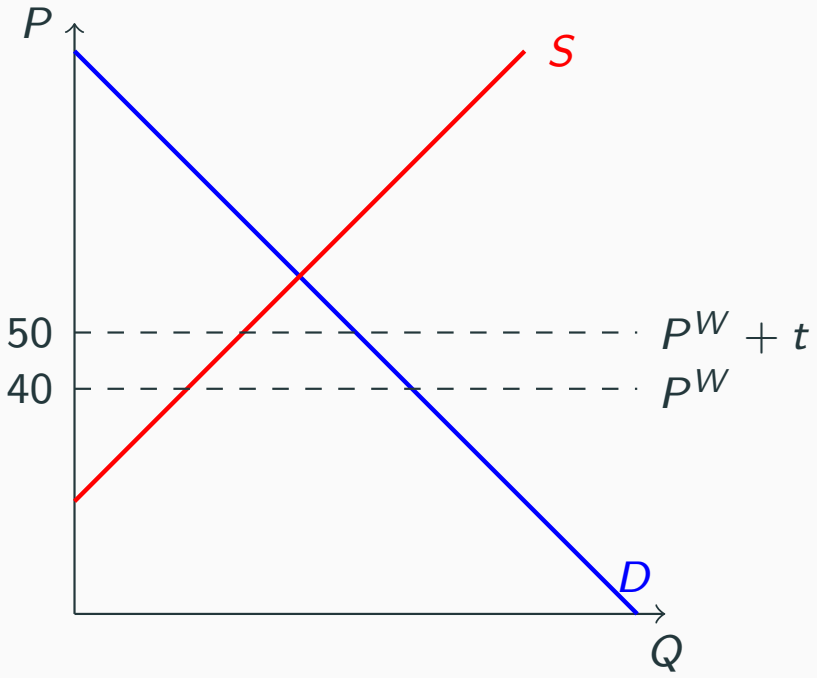
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2. The world price is $P^W = 40$. Find Q^D, Q^S, and imports.
3. Compute CS, PS, and total surplus with free trade. What are the gains from trade?

Answer: (1) $P = 60$, $Q = 40$. CS $= \frac{1}{2}(40)(40) = 800$, PS $= \frac{1}{2}(40)(40) = 800$, TS $= 1600$.
(2) $Q^D = 60$, $Q^S = 20$, imports $= 40$.
(3) CS $= \frac{1}{2}(60)(60) = 1800$, PS $= \frac{1}{2}(20)(20) = 200$, TS $= 2000$. Gains from trade $= 400 = \frac{1}{2}(20)(40)$.

Q9: Adding a Tariff

Same market: $Q^D = 100 - P$, $Q^S = P - 20$, $P^W = 40$. The government imposes a \$10 tariff per widget.

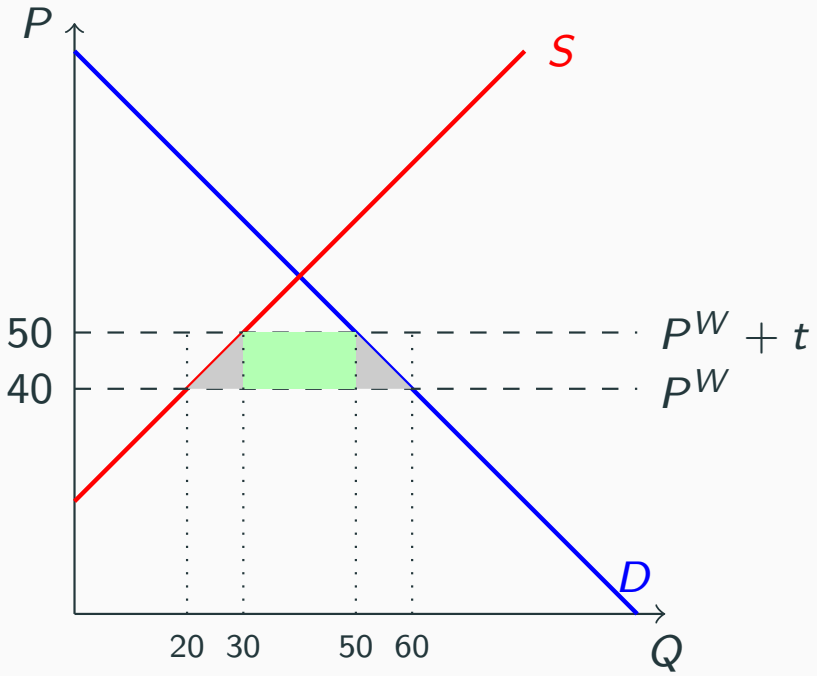
1. New domestic price, Q^D, Q^S, imports?
2. Tariff revenue?
3. Deadweight loss?



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1. New domestic price, Q^D, Q^S, imports?
2. Tariff revenue?
3. Deadweight loss?



Answer: $P = 50$, $Q^D = 50$, $Q^S = 30$, imports $= 20$. Revenue $= 10 \times 20 = 200$ (green). DWL $= \frac{1}{2}(10)(10) + \frac{1}{2}(10)(10) = 100$ (gray). Check: TS falls from 2000 to $1250 + 450 + 200 = 1900$.

Open up Canvas and navigate to **“In-Class Activity 6 (Discussions)”**!

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