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CH7 Perfect Competition and the Invisible Hand & CH8 Trade

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September 24, 2022

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Outline

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Efficiency among Individuals

- In perfectlt competitive markets, social surplus (consumer surplus + producer surplus) is maximized.
- The equilibrium price efficiently allocates goods and service to buyers and sellers.
- **Pareto Efficiency** is the outcome that no individual can be better off without making someone else worse off.
- The competitive market equilibrium is also Pareto efficient.

Efficiency within an Industry

- When operating in a competitive market, a firm chooses to produce goods at the same MC in different plants to maximize profit. (also minimizing costs)

- This also implies that equilibrium price efficiently allocates the production of goods within an industry. (different plants in a firm $\Rightarrow$ firms in different scales)

Efficiency across Industries

- Competitive markets provide strong incentives for firms to shift their scarce resources to the highest possible use and in turn maximize their profits.

- This can be observed by entry and exit of firms, which implies wether the industry is profitable or not.

- Equilibrium prices efficiently allocate scarce resources across industries.

Price: The Invisible Hand

- Pricing system can act as an invisible hand and order behavior across a vast array of markets.
- Interventions such as price controls implemented by governments could lead to **deadweight loss.**

Equity and Efficiency

- Market economy maximizes social surplus and makes economy efficient by price signals. Therefore, it maximizes the total size of the economic pie.
- **Equity** is concerned with how the pie is allocated to economic agents.
- Since the competitive equilibrium is also Pareto efficient, there are often **trade-offs** between efficiency and equity.

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Exercise1: problem7-9 (二版課本題號同)

Masumi is a Japanese company that has a production unit in Madagascar. It produces 10,000 pairs of chopsticks per month in Madagascar at the average total cost of $0.8.

A manager finds that while the average total cost of producing 7,000 pairs of chopsticks in Madagascar is $0.5, the average total cost of producing 3,000 pairs of chopsticks in Japan is $1.2. Should Masumi shift its production line for 3,000 pairs of chopsticks to Japan? Explain.
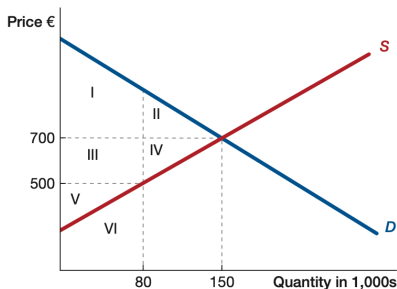
Answer:

- If Masumi produces 10,000 pairs of chopsticks in Madagascar, the total cost will be $10,000 \times \$0.8 = \$8,000$.

- If Masumi moves the production line for 3,000 pairs of chopsticks to Japan, the total cost will be

  $(3,000 \times \$1.2) + (7,000 \times \$0.5) = \$7,100$.

- Since $\$7100 < \$8000$, Masumi should move the production line for 3,000 pairs of chopsticks to Japan.

- The firm could maximize its profit and minimize its costs when $MC_{Madagascar} = MC_{Japan}$.

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<u>Exercise2: Problem7-11</u> (二版課本數字不同)

The equilibrium price of a medicine is €700 per year and the equilibrium quantity of this medicine is 150,000 units.

The government now passes a price ceiling regulating the price of this medicine, which sets the maximum price at €500.

The following diagram summarizes the supply and demand for this medicine.

Exercise2: Problem7-11 (continued)

a. Use the figure to complete the following table.

b. How did the consumer, producer, and social surplus change respectively after the implementation of price ceiling?

Answer:

a.

|	Before	After	Change
Consumer Surplus	I + II	I + III	III - II
Producer Surplus	III + IV + V	V	-III - IV
Social Surplus	I + II + III + IV + V	I + III + V	-II - IV

Answer: (continued)

b.

- It is not clear if consumer surplus rose or fell. It depends on the size of III and II.
- Producer surplus definitely fell.
- III is transferred from producer to consumer.
- Social surplus fell since there was a deadweight loss of II + IV caused by distortion of market.
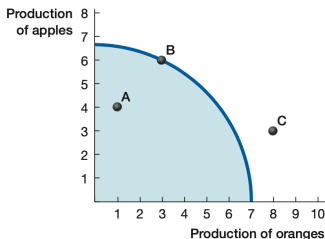
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Production Possibility Curve
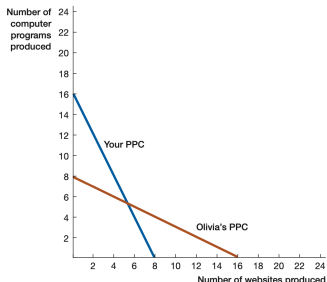
- Your opportunity cost$_{\text{website}}$ = $\frac{\text{loss in programs}}{\text{gain in websites}}$ = $\frac{-16}{8}$ = -2
- Your opportunity cost$_{\text{program}}$ = $\frac{\text{loss in websites}}{\text{gain in programs}}$ = $\frac{-8}{16}$ = $-\frac{1}{2}$

Economy-Wide PPC

- As we sum up hundreds of thousands of people's PPC, we get a smoothly curved line pointing away from the origin.
- The curvature represents the general principle of increasing opportunity cost. Moving to production extremes is difficult and must face diminishing marginal product.

Comparative Advantage and Terms of Trade

Individual	Number of Websites	Number of Programs
You	24	16
Olivia	16	8

	Opportunity Cost of	
Individual	Websites	Programs
You	$\frac{2}{3}$ programs	$\frac{3}{2}$ websites
Olivia	$\frac{1}{2}$ programs	2 websites

- You have a comparative advantage in producing programs, and Olivia has a comparative advantage in producing websites.

- The terms of trade is the exchange rate of goods for goods.
- For the example above, we exchange a program with $\frac{3}{2}$ to 2 websites.

Exporting and Importing
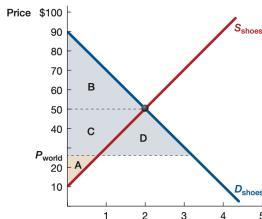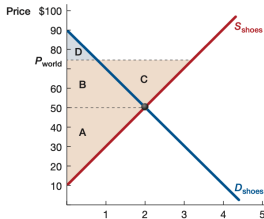
- For exporting nations, sellers win but buyers lose.
- For importing nations, buyers win but sellers lose.
- **For the economy as a whole, social surplus ↑.**

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Exercise1: Problem8-4 (二版課本數字不同)
There are 100 workers in France and each can produce either 10 croissants or 2 hats. There are 200 workers in the United Kingdom and each can produce 4 croissants or 10 hats.

a. Draw the PPC for each country. In each case, identify the intercepts and the slopes of the PPC.

b. What is the opportunity cost of croissants in France? What is the opportunity cost of croissants in the UK?

c. Which country has a comparative advantage in the production of croissants?

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Answer:

a.

Country	Number of Croissants	Number of Hats
France	1000	200
the UK	800	2000

b.

	Opportunity Cost of	
Country	Croissants	Hats
France	$\frac{200}{1000} = 0.2$ hats	$\frac{1000}{200} = 5$ croissants
the UK	$\frac{2000}{800} = 2.5$ hats	$\frac{800}{2000} = 0.4$ croissants

c. Since the opportunity cost of croissants in France is lower $(0.2 < 2.5)$, France has a comparative advantage in the production of croissants.

Exercise1: Problem8-4 (continued)

d. In the absence of trade, if France consumes 600 croissants, how many hats can it consume? If the UK consumes 500 hats, how many croissants can it consume?

e. Someone now proposes that the UK and France enter into a trade agreement. Under this agreement, the UK will give France 500 hats and France will give the UK 200 croissants. If France continues to consume 600 croissants, how many hats will it be able to consume under this proposal? If the United Kingdom continues to consume 500 hats, how many croissants will it be able to consume under this proposal?

f. Should France accept this proposal? Should the UK accept this proposal?

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Answer: (continued)

d. In the absence of trade, for France to produce 600 croissants, $\frac{600}{10} = 60$ workers are needed. France is left with 40 workers to produce and consume $40 \times 2 = 80$ hats.
In the absence of trade, for the UK to produces 500 hats, $\frac{500}{10} = 50$ workers are needed. The UK is left with 150 workers to produce and consume $150 \times 4 = 600$ croissants.

e. France will have to produce 800 croissants (600 for France and 200 for the UK). So $\frac{800}{10} = 80$ workers are needed for the production of croissants. The remaining 20 workers produce $20 \times 2 = 40$ hats, and France receives 500 hats from the United Kingdom in return for 200 croissants. So France can consume 540 hats.

Answer: (continued)

e. The United Kingdom will have to produce 1,000 hats (500 for the United Kingdom and 500 for France). So $\frac{1000}{10} = 100$ workers are needed for the production of hats. The remaining 100 workers will produce $100 \times 4 = 400$ croissants. So the United Kingdom consumes 600 croissants because it receives 200 croissants from France in return for 500 hats.

f. As the trade is to exchange 1 croissant with 2.5 hats, France gets better off in under the agreement and the UK is just indifferent to join the trade.

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Exercise2: Problem8-11 (二版課本數字不同)

Suppose domestic demand is $Q_D = 30 - 2P$ and domestic supply is $Q_S = P$. There was a **lifting** of the ¥4 per unit tariff so that the world price is back to ¥4. First make a sketch, and then find the following values. Each value will be represented by an area in your sketch.

- a. Consumer surplus
- b. Producer surplus
- c. Government revenue that was lost
- d. Deadweight loss that disappeared due to the lifting of the tariff

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Answer:
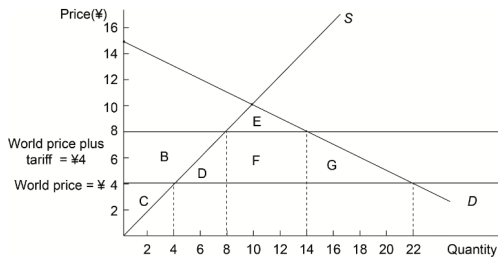
a. CS $= \frac{1}{2} \times (22 - 0) \times (¥15 - ¥4) = ¥121$.

b. PS $=$ C $= \frac{1}{2} \times (4 - 0) \times (¥4 - ¥0) = ¥8$.

c. Lost revenue $=$ F $= (14 - 8) \times (¥8 - ¥4) = ¥24$.

d. D $= \frac{1}{2} \times (8 - 4) \times (¥8 - ¥4) = ¥8$.

   G $= \frac{1}{2} \times (22 - 14) \times (¥8 - ¥4) = ¥16$,

   $\Rightarrow$ DWL disappeared $=$ D + G $= ¥24$.