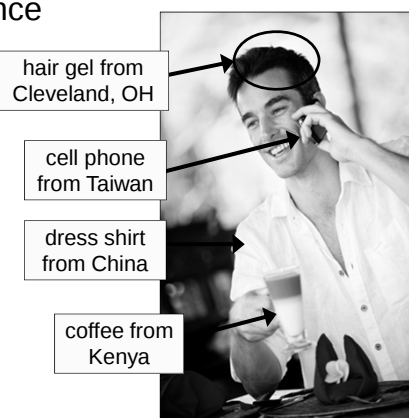


CHAPTER 3 Interdependence and the Gains from Trade

Wangchuan (1811-1867)

Interdependence

Every day you rely on many people from around the world, most of whom you've never met, to provide you with the goods and services you enjoy.



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Interdependence

- One of the Ten Principles from Chapter 1: ().
- We now learn why people—and nations—choose to be interdependent, and how they can gain from trade.

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Our Example

- Two countries: the U.S. and Japan
- Two goods: computers and wheat
- One resource: labor, measured in hours
- We will look at how much of both goods each country produces and consumes
 - if the country chooses to be self-sufficient
 - if it trades with the other country

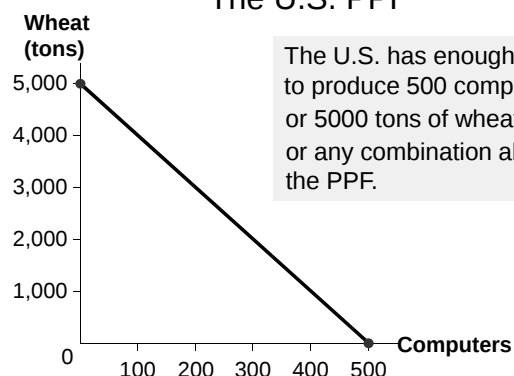
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Production Possibilities in the U.S.

- The U.S. has 50,000 hours of labor available for production, per month.
- Producing one computer requires 100 hours of labor.
- Producing one ton of wheat requires 10 hours of labor.

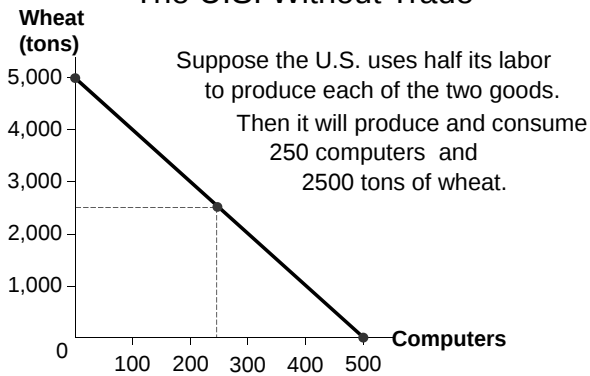
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The U.S. PPF



5

The U.S. Without Trade



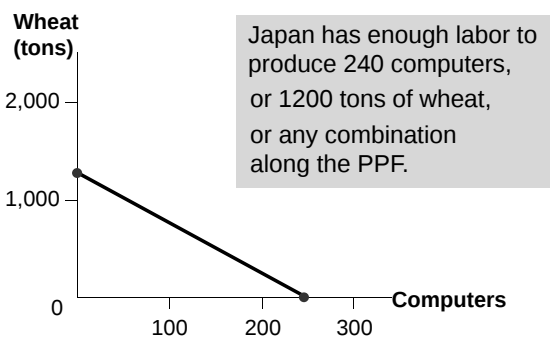
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Production Possibilities in Japan

- Japan has 30,000 hours of labor available for production, per month.
- Producing one computer requires 125 hours of labor.
- Producing one ton of wheat requires 25 hours of labor.

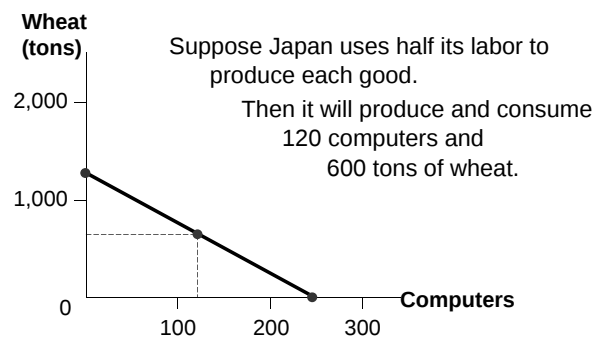
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Japan's PPF



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Japan Without Trade



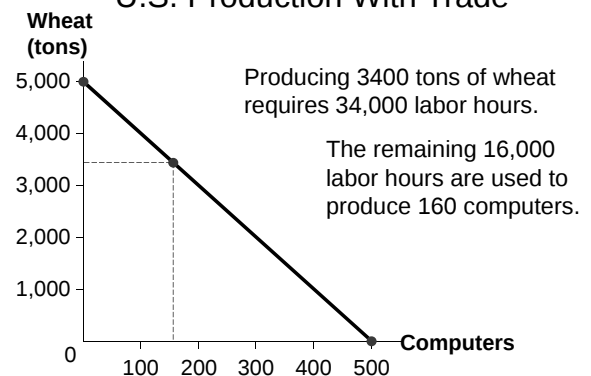
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Consumption With and Without Trade

- Without trade,
 - U.S. consumers get 250 computers and 2500 tons wheat.
 - Japanese consumers get 120 computers and 600 tons wheat.
- We will compare consumption without trade to consumption with trade.
- First, we need to see how much of each good is produced and traded by the two countries.

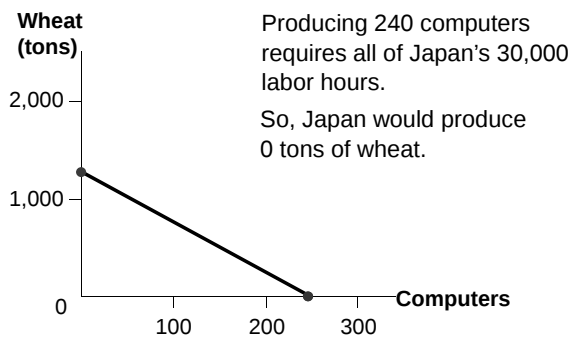
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U.S. Production With Trade



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Japan's Production With Trade



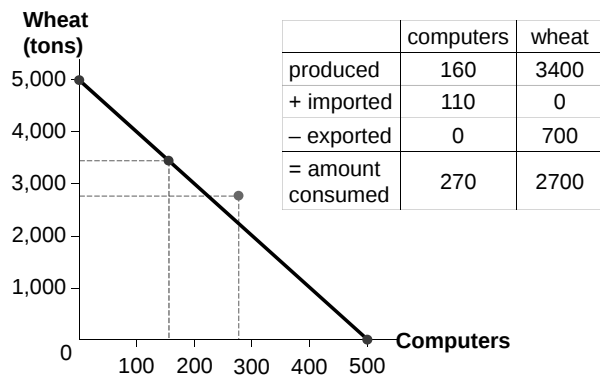
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Exports & Imports

- **Exports:**
goods produced domestically and sold abroad
- **Imports:**
goods produced abroad and sold domestically

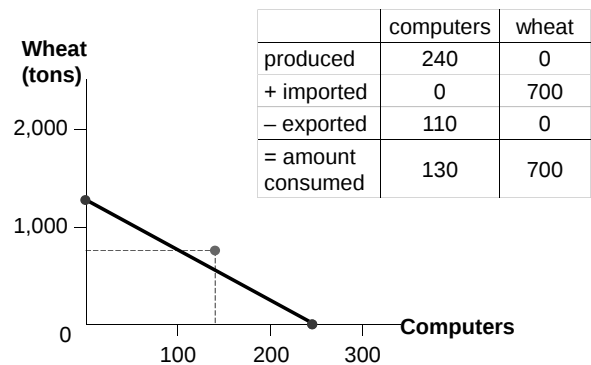
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U.S. Consumption With Trade



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Japan's Consumption With Trade



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Trade Makes Both Countries Better Off

U.S.			
	consumption without trade	consumption with trade	gains from trade
computers	250	270	20
wheat	2500	2700	200
Japan			
	consumption without trade	consumption with trade	gains from trade
computers	120	130	10
wheat	600	700	100

Where Do These Gains Come From?

- (): the ability to produce a good using fewer inputs than another producer
- The U.S. has an absolute advantage in wheat: producing a ton of wheat uses 10 labor hours in the U.S. vs. 25 in Japan.
- If each country has an absolute advantage in one good and specializes in that good, then both countries can gain from trade.

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Where Do These Gains Come From?

- Which country has an absolute advantage in computers?
- Producing one computer requires 125 labor hours in Japan, but only 100 in the U.S.
- The U.S. has an absolute advantage in both goods!

So why does Japan specialize in computers? Why do both countries gain from trade?

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Two Measures of the Cost of a Good

- Two countries can gain from trade when each specializes in the good it produces at lowest cost.
- Absolute advantage measures the cost of a good in terms of the inputs required to produce it.
- Recall: Another measure of cost is *opportunity cost*.
- In our example, the opportunity cost of a computer is the amount of wheat that could be produced using the labor needed to produce one computer.

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Opportunity Cost and Comparative Advantage

- (): the ability to produce a good at a lower opportunity cost than another producer
- Which country has the comparative advantage in computers?
- To answer this, must determine the opportunity cost of a computer in each country.

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Opportunity Cost and Comparative Advantage

- The opportunity cost of a computer is
 - 10 tons of wheat in the U.S.: Producing one computer requires 100 labor hours, which instead could produce 10 tons of wheat.
 - 5 tons of wheat in Japan: Producing one computer requires 125 labor hours, which instead could produce 5 tons of wheat.
- So, Japan has a comparative advantage in computers. *Lesson: Absolute advantage is not necessary for comparative advantage!*

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Comparative Advantage and Trade

- Gains from trade arise from comparative advantage (differences in opportunity costs).
- When each country specializes in the good(s) in which it has a comparative advantage, total production in all countries is higher, the world's "economic pie" is bigger, and all countries can gain from trade.
- The same applies to individual producers (like Farmer Frank and Rancher Rose) who benefit by specializing in different goods and trading with each other.

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Unanswered Questions...

- We made a lot of assumptions about the quantities of each good that each country produces, trades, and consumes, and the price at which the countries trade wheat for computers.
- In the real world, these quantities and prices would be determined by the preferences of consumers and the technology and resources in both countries.
- We will begin to study this in the next chapter.
- For now, though, our goal was merely to see how ***trade can make everyone better off.***

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