Chapter 3 Lesson(s) Plan / Outline

Chapter 3: Interdependence and Gains from Trade

Introduction

Introduce the Topic

In the first two chapters, we learned (1) the ten principles of economics, and (2) how economists approach problems. Now, we will combine what we learned so far – that is we will learn about one of the core principles of economics using methods learned in chapter 2.

In Chapter 3 we discuss TRADE! When we discuss trade, we typically mean exchange of goods or services between two individuals, individual and a firm, individual and the government, two firms, two countries. The principles we will learn apply to trade between any two parties.

Ask Students What They Already Know. Start a Discussion.

Before we go to any details, I want to hear what you know about trade.

- What comes to your mind when you hear the word "trade"?
- What does US trade with?
- What are exports and what are imports?
- What do you think US exports? What does it import?
- Are we better of because we trade?
- Is everyone better off due to trade?
- Why do we trade? Can we make everything ourselves?
- What if we did not trade?
- Does trade help us in the long run?

Using student answers to questions, suggestions, and ideas, create a discussion using follow-up questions.

Write down a few big ideas and the general outline for the class.

- Trade can be beneficial to all! Trade is not a zero-sum game!
- Due to trade total output increases, allowing for higher consumption and wellbeing to all.
- Trade allows higher output because of specialization.
- In the short run, there are winners and losers due to trade.
- Losers can be compensated so that no one loses due to trade.
- There are two types of advantages: absolute and comparative advantage.
- Country/Individual should produce more and export/sell a good in which it has a comparative advantage.
- Terms of trade (the price/exchange rate) must lie between the two countries production opportunity costs.

Why are we learning this?

We are learning this because of the following.

- Specialization and trade has brought incredible welfare benefits to the world and it is important to understand how, why and where trade happens, and how it affects all of us, even if we do not think we directly engage in trade,
- A good understanding of the benefits and costs of trade, implications for different demographic groups, different groups of workers allows you to better evaluate the current and prospective US trade laws.
- Understanding how many people around the world contribute to you having your morning coffee, car, cellphone fosters appreciation and respect to people around the world.

- Understanding of why and how we individually and countries trade with each other will allow you to appreciate the field of economics, the society we live in

What is our goal for the class?

The purpose of this class is to demonstrate:

- why we engage in so much trade,
- how everyone can gain from trade,
- understand the costs of not engaging in or limiting free trade,
- the economics behind the US trade deals with other countries,
- why countries export what they export,
- why countries import what they import

Content

Outline

Drawing and Using PPF Model

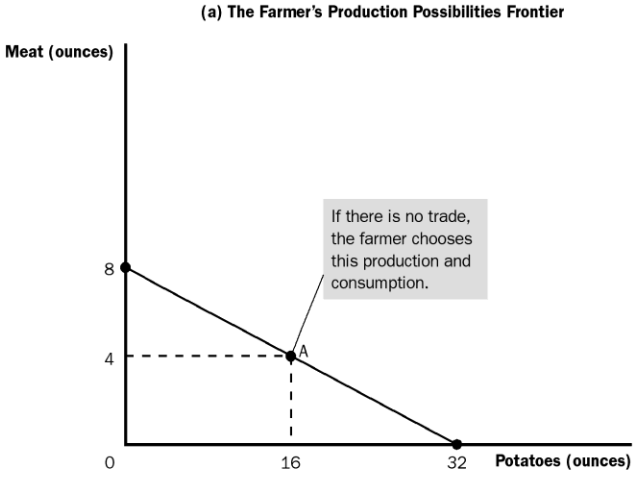
- How to make a production possibilities table and frontier using given information about two people/countries?

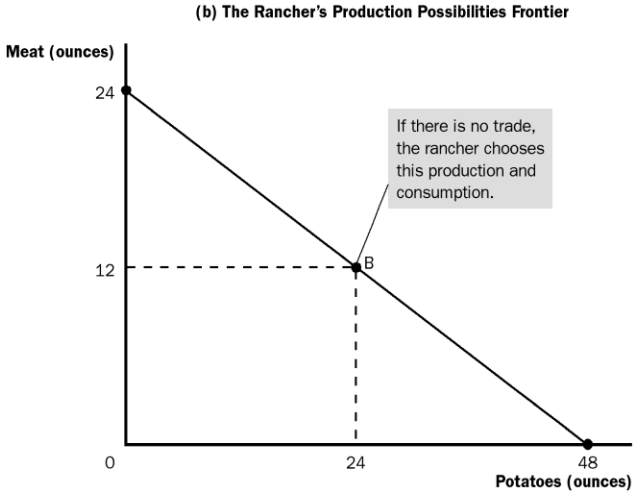
Learning by Example

- There are two people (Frank and Ruby) producing two goods (meat and potatoes).
- If each can only produce one good – obviously trade is beneficial. What if both people can produce both goods?
- Example: Frank and Ruby both work eight hours per day and can use this time to grow potatoes, raise cattle, or both.
- Frank produces an ounce of meat in 60min, and an ounce of potatoes in 15min.
- Ruby produces an ounce of meat in 20min, and an ounce of potatoes in 10min.
- If they focused on one good only, how much would they be able to produce?

	Minutes Needed to Make One Oz		**Amount Produced in Eight Hours**	
	Meat	**Potatoes**	**Meat**	**Potatoes**
Frank	60 min./oz.	15 min./oz.	8/1=8 oz.	8/0.25=32 oz.
Ruby	20 min./oz.	10 min./oz.	8/0.33=24 oz.	8/0.16=48 oz.

- Using this information, draw a production possibilities frontier. For example, let meat be measured on the vertical (y) axis, and potatoes – on the horizontal axis.
- Frank could produce 8 ounces of meat if all of his time is spent on meat or 32 ounces of potatoes if all of his time is spent on potatoes.





Working another example

Absolute and Comparative Advantage

- What is the difference between absolute and comparative advantage?
- How to compute opportunity cost?
- How to find absolute and comparative advantage?

Continuing the Main Example

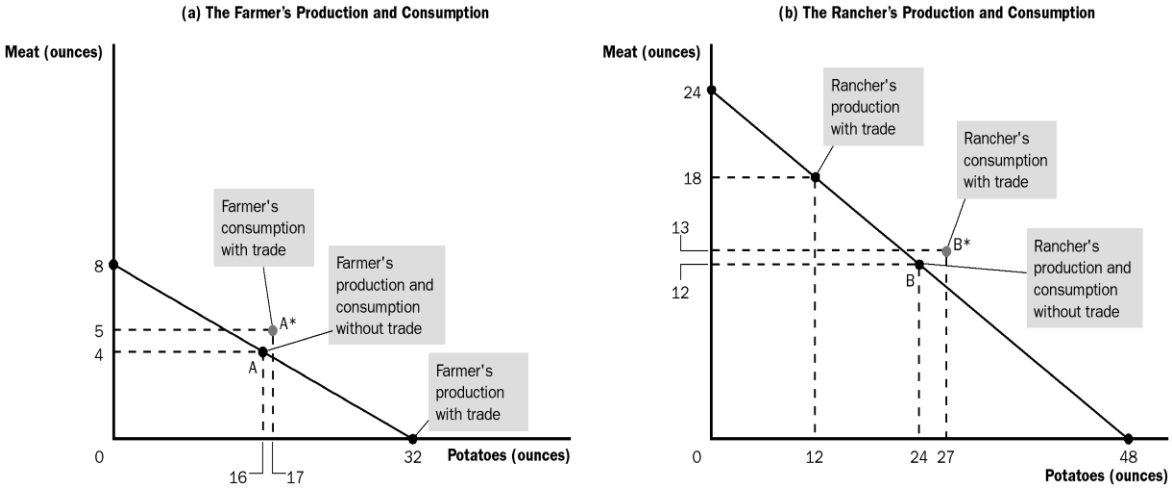
- Absolute advantage: the ability to produce a good using fewer inputs than another producer does. Ruby has an absolute advantage in the production of both potatoes and meat.
- Comparative advantage: the ability to produce a good at a lower opportunity cost than another producer.
- Opportunity cost: whatever must be given up to get something.
- For Ruby, it takes ten minutes to produce one ounce of potatoes. Those same ten minutes could be used to produce one-half ounce of meat. Thus, the opportunity cost of producing an ounce of potatoes is one-half ounce of meat.
- $OC_{Ruby_{potatoes}} = \frac{10\frac{min}{oz\ potatoes}}{20\frac{min}{oz\ meat}} = 0.5\frac{oz\ meat}{1\ oz\ potatoes}$ (primary method)
- $OC_{Ruby_{potatoes}} = \frac{24\ oz\ meat}{48\ oz\ potatoes} = 0.5\ \frac{oz\ meat}{1\ oz\ potatoes}$ (alternative method)
- For Frank, it takes 15 minutes to produce one ounce of potatoes. Those same 15 minutes could be used to produce one-fourth ounce of meat. Therefore, the opportunity cost of producing one ounce of potatoes is one-fourth ounce of meat.
- $OC_{Frank_{potatoes}} = \frac{15\frac{min}{oz\ potatoes}}{60\frac{min}{oz\ meat}} = 0.25\frac{oz\ meat}{1\ oz\ potatoes}$
- $OC_{Frank_{potatoes}} = \frac{32\ oz\ meat}{8\ oz\ potatoes} = 0.25\ \frac{oz\ meat}{1\ oz\ potatoes}$
- Frank has a lower opportunity cost of producing potatoes and therefore has a comparative advantage in the production of potatoes.
- Because the opportunity cost of producing one good is the inverse of the opportunity cost of producing the other, it is impossible for a person to have a comparative advantage in the production of both goods.
- Ruby has a lower opportunity cost of producing meat and therefore has a comparative advantage in the production of meat.

Specialization, Gains from Trade and Terms of Trade

- How to specialize and trade?
- What terms of trade work for both parties?

Continuing the Main Example

- When specialization in a good occurs (assuming there is a comparative advantage), total output will grow.
- If the opportunity cost of producing the goods differs across the two individuals, both can gain from specialization and trade.
- Trade occurs based on comparative advantage. Each party will specialize in / produce more of and export the good in which it has a comparative advantage and will import the other good.
- Frank has a lower opportunity cost in producing potatoes thus he has a comparative advantage in making potatoes. This means that for trade to be beneficial, Frank must specialize in potatoes. He will produce more potatoes than he needs and export some to Ruby.
- Ruby has a comparative advantage in making meat. She will produce more meat than she needs and export some to Frank.
- For example, if
    - Ruby will spend six hours a day producing meat (18 ounces) and two hours a week growing potatoes (12 ounces).
    - Frank will spend eight hours a day growing potatoes (32 ounces).
    - Ruby will trade 5 ounces of meat for 15 ounces of potatoes.
    - They both will benefit as can be seen in the PPF.



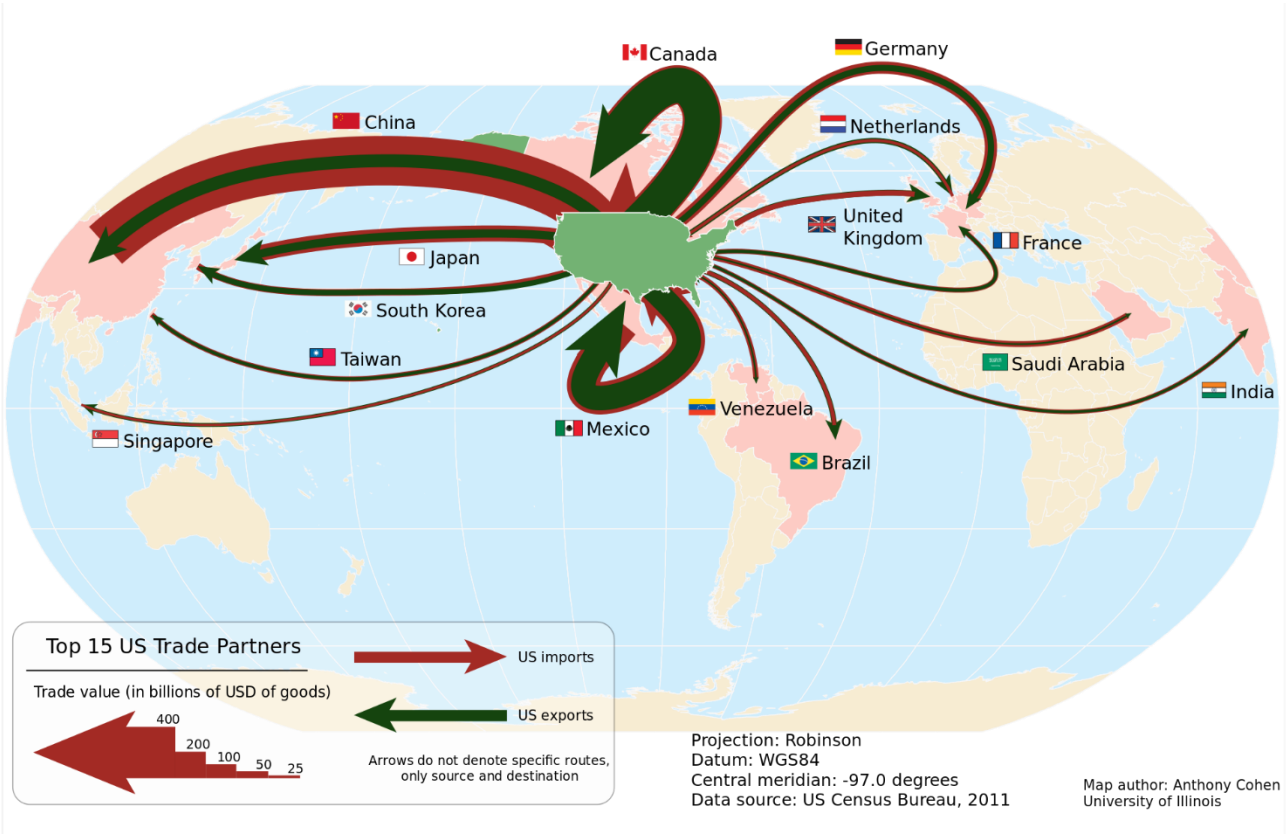
- How do we know that 5 ounces of meat for 15 ounces of potatoes is a trade that both will accept (that will benefit both of them).
- Any terms or trade/price of trade/trade ratio will work that is between the two parties' opportunity costs. In our example, opportunity cost to produce potatoes is 0.25 for Frank and 0.5 for Ruby. Terms of trade between these two will benefit both. When the terms of trade are within this range, they will find that trading is cheaper than trying to do everything on their own.
- They traded 5 for 15, or 0.33 oz. of meat per 1 oz. of potatoes. That is in the range that benefits both.
- Show example what if the terms of trade are not in the range. One of them will refuse to trade.

Discussion Question

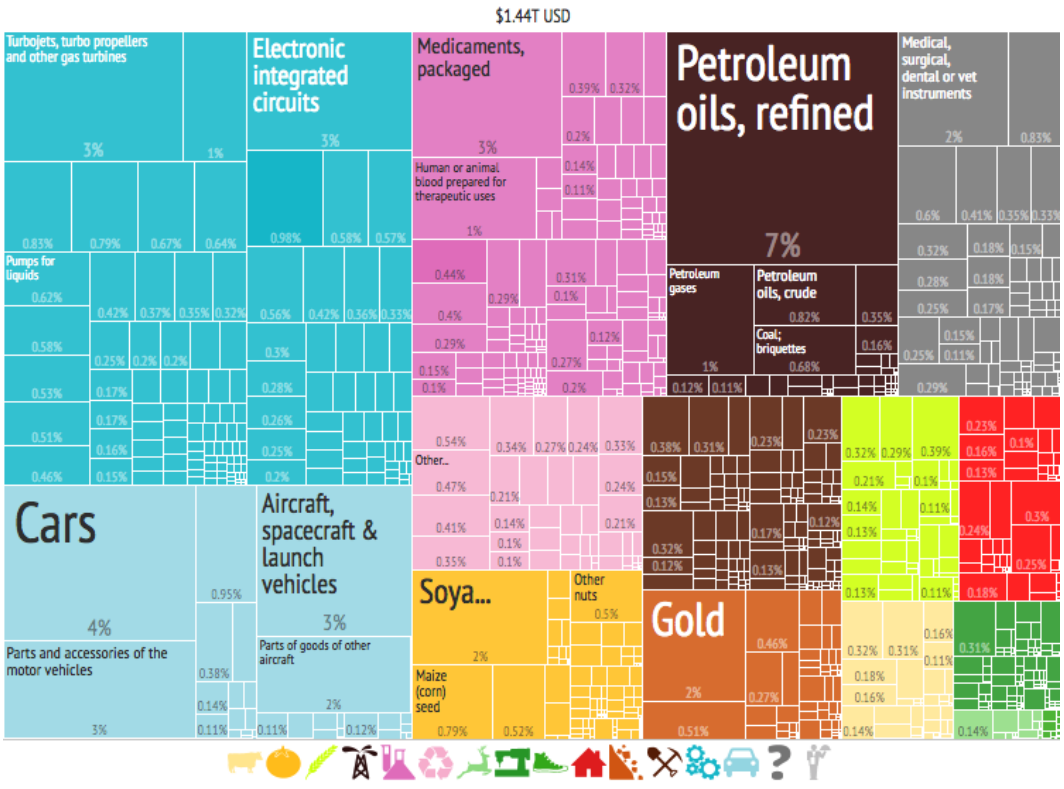
- Question 1: Should Serena Williams mow her own lawn? Paint her house? Assume that she is very good at mowing lawns and painting houses. But what is the opportunity cost?
- Question 2: How can we reconcile the fact that trade makes Americans better off, when majority of people working in industries producing competing (with imports) goods are made worse off?
- Question 3: What does US have a comparative advantage in? What do we export? Why?
- Question 4: US exports and imports cars. How is that possible?

US Trade Visuals

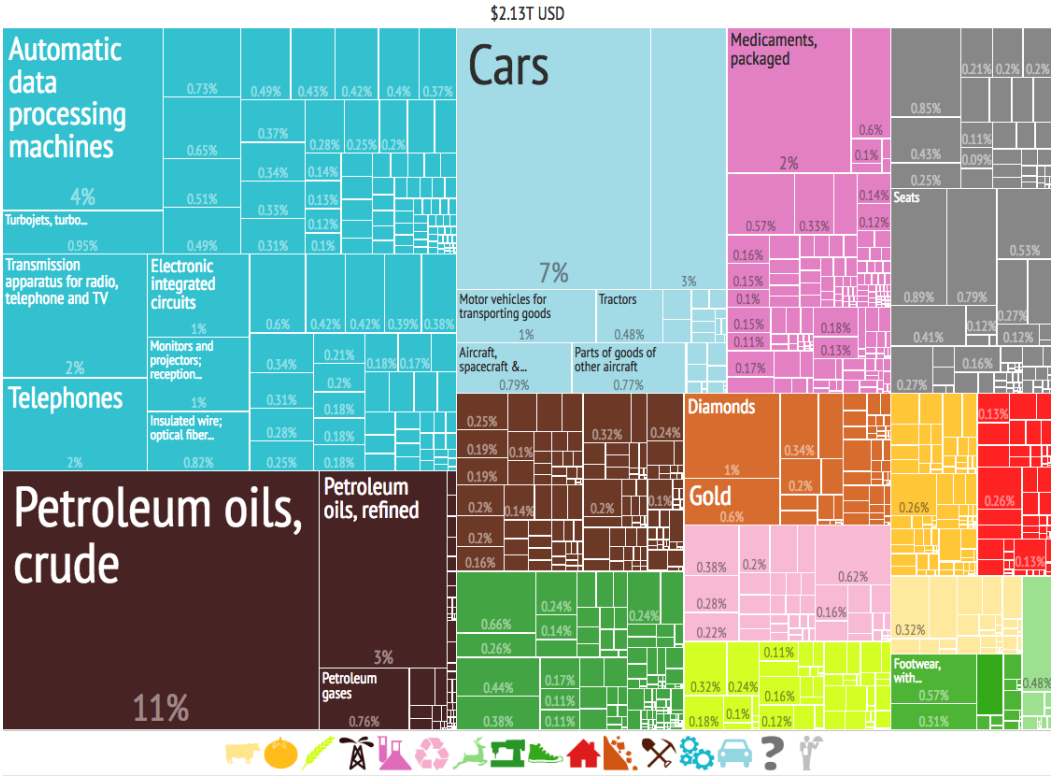
Trade Flows Between US and Its Trading Partners



Exports



Imports



Conclusion

Quick Quiz to Check Student Understanding

- Question 1: People who provide you with goods and services
  - A: do so to be nice.
  - ***B: do so because they get something in return.***
  - C: choose not to depend on others.
  - D: are required to do so.

- Question 2: Adam Smith asserted that a person should never attempt to make at home
  - ***A: what it will cost him more to make than to buy.***
  - B: any good in which that person does not have an absolute advantage.
  - C: any luxury good that is difficult to make.
  - D: any necessity that is easy to make.

- Question 3: Olivia bakes cakes and Andrew grows corn. Olivia and Andrew both like to eat cake and eat corn. In which of the following cases is it impossible for both Olivia and Andrew to benefit from trade?
  - A: Olivia cannot grow corn and Andrew cannot bake cakes.
  - B: Olivia is better than Andrew at baking cakes and Andrew is better than Olivia at growing corn.
  - C: Olivia is better than Andrew at baking cakes and at growing corn.
  - ***D: Both Olivia and Andrew can benefit from trade in all of the above cases.***

- Question 4: Assume for Brazil that the opportunity cost of each cashew is 100 peanuts. Which of these pairs of points could be on Brazil's production possibilities frontier?
    - ***A: (200 cashews, 30,000 peanuts) and (150 cashews, 35,000 peanuts)***
    - B: (200 cashews, 40,000 peanuts) and (150 cashews, 30,000 peanuts)
    - C: (300 cashews, 60,000 peanut) and (200 cashews, 50,000 peanuts)
    - D: (300 cashews, 60,000 peanuts) and (200 cashews, 80,000 peanuts)

- Question 5 (open-ended): What is the difference between absolute advantage and comparative advantage? Which is more important in determining trade patterns, absolute advantage or comparative advantage? Why?

- Question 6 (open-ended): What does a production possibilities frontier represent? Under what conditions is an economy's production possibilities frontier also its consumption possibilities frontier?

Main Points to Remember

- Trade can be beneficial to all! Trade is not a zero-sum game!
- Due to trade total output increases, allowing for higher consumption and wellbeing to all.
- Trade allows higher output because of specialization.
- In the short run, there are winners and losers due to trade. Losers can be compensated so that no one loses due to trade.
- There are two types of advantages: absolute and comparative advantage.
- Country/Individual should produce more and export/sell a good in which it has a comparative advantage.
- Terms of trade (the price/exchange rate) must lie between the two countries production opportunity costs.

Let Students Give Input

- Ask students with what they found interesting.
- Have a discussion on student-interest topics.
- Prepare a bit more on those interests for the beginning of the next session.

Leave a few additional external sources to learn more.

Websites

- US Trade Profile. Observatory of Economic Complexity
- Top US Exports. CNN (2018)
- Information on US Trade. Office on the United States Trade Representative
- Data on US Net Exports. FRED
- The Business Behind the Trade Balance. FRED
- Women and Trade. World Trade Organization

Podcasts

- Trade Show
- Why Car Safety Is a Trade Barrier
- Land of Duty Free
- Planet Money T-Shirt Exposes Issues Of Work, Trade And Clothes
- Different Kind of Banks and Trade

Movies and Documentaries

- Shadow World (2016)
- The Deceptive Promise of Free Trade. DW Documentary (2018)

- The Rise and Fall of Global Trade: The Romans to Covid-19. FT Trade Secrets (2020)
- How Global Trade Runs on U.S. Dollars. WSJ
- The Role of Trade in Supporting Growth and Reducing Poverty. World Bank

YouTube Videos and Lessons Explaining Trade Concepts

- The Benefits of International Trade: Econ-1 with John Taylor
- Specialization and Trade: Crash Course Economics #2
- Imports, Exports, and Exchange Rates: Crash Course Economics #15
- Production Possibilities Curve Review