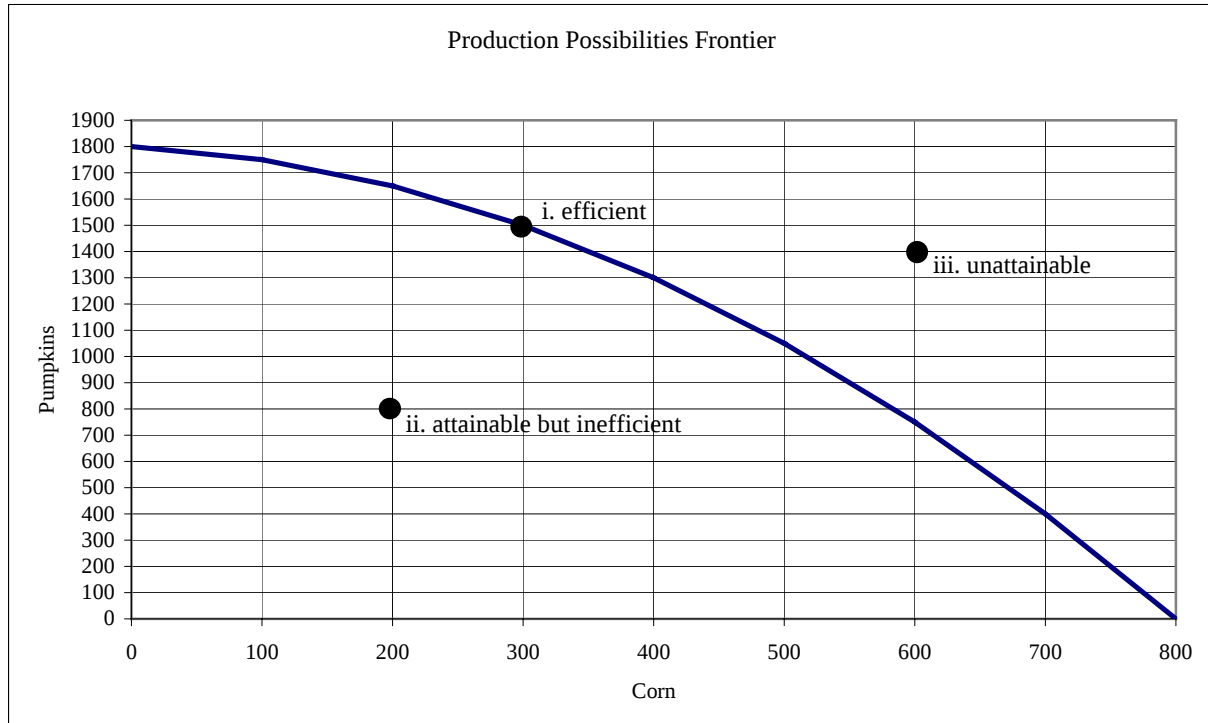


Homework 1

1. Sally has a farm where she grows pumpkins and corn. The graph below shows the combinations of pumpkins and corn she is able to grow.



- a.
- Give an example of a combination of pumpkins and corn that would be efficient for Sally to produce. **See the graph above; any point on the line is efficient.**
 - Give an example of a combination of pumpkins and corn that would be attainable but inefficient for Sally to produce. **See the graph above; any point under the line is attainable but inefficient.**
 - Give an example of a combination of pumpkins and corn that would be unattainable for Sally to produce. **See the graph above; any point above the line is unattainable.**
- b.
- If Sally is currently producing 100 corn and she decides she wants to produce 200 corn instead, what is her opportunity cost for each corn when she increases from 100 to 200 corn? **We find the opportunity cost by taking the slope at the production possibilities frontier. Since the frontier is a curve, the opportunity cost changes depending on where we are on the curve, so we have to take the slope at the point given in the question. To move from 100 to 200 corn she must go from 1750 to 1650 pumpkins. Opportunity cost = slope = $(1650 - 1750) \div (200 - 100) = -100 \div 100 = -1$. For every 1 corn Sally makes, she must give up 1 pumpkin. (The opportunity cost of 1 corn is 1 pumpkin.)**

ii. If Sally is currently producing 700 corn and she decides she wants to produce 800 corn instead, what is her opportunity cost for each corn when she increases from 700 to 800 corn? **Just like in part i of the question, we find the opportunity cost by taking the slope. $(0 - 400) \div (800 - 700) = -400 \div 100 = -4$. For every 1 corn Sally makes, she must give up 4 pumpkins.**

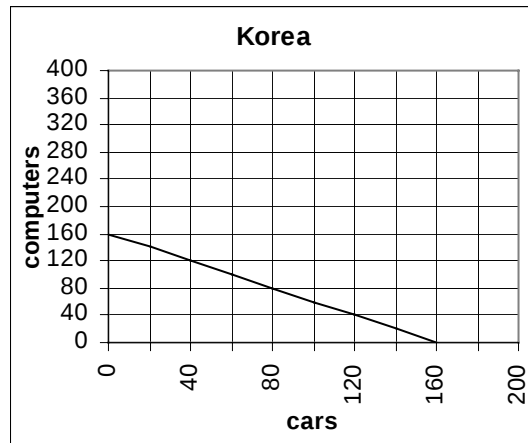
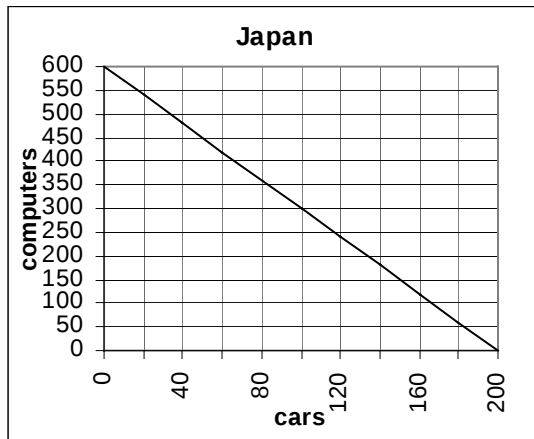
c. Does Sally have increasing opportunity costs? Explain what increasing opportunity costs are and how you know either she does or does not have them. **Yes, Sally has increasing opportunity costs. Refer back to part b of this question. When she is growing 100 corn, her opportunity cost of 1 more corn is 1 pumpkin. When she is growing 200 corn, her opportunity cost of 1 more corn has increased to 4 pumpkins. The more corn Sally makes, the higher the opportunity cost of making corn. We know Sally has increasing opportunity costs because the production possibilities frontier is a curve (bowed outward) rather than a straight line. Since the slope of the curve increases as we move towards more corn, the opportunity cost is increasing.**

d. In general, what has to be true about resources in order to have increasing opportunity costs? Give an example of two products that would have a production possibilities frontier with increasing opportunity costs. (Do not use the example given in class. Rather, make up an example of your own.) **Resources (things used in production) have to be specialized to have increasing opportunity costs. This means that some inputs are better for making one product than the other. Your example may vary, but sticking with the corn/pumpkin example, maybe part of the ground is in sunshine and part is in shade and pumpkins grow better in shade than in sunlight.**

e. Give two examples of things that would shift Sally's production possibilities frontier out (to the right). Make the examples specific to the growing of pumpkins and corn. **The two things that shift the production possibilities frontier are a change in resources and a change in technology. Your examples will vary, but here are two examples. Sally's production possibilities frontier would shift out if she got a bigger plot of land to use for her garden. In terms of technology, perhaps they discovered a new fertilizer that makes food grow better. This would increase the amount of corn and pumpkins that Sally could grow.**

2. You and your roommate are sitting around talking politics one day and the issue of international trade comes up. Your roommate says, "I am sick of seeing jobs go to other countries when the U.S. is better at producing goods. If I were President I would put big restrictions on trade and make American's buy things built in America. There would be more jobs and everyone would be better off." What would your reply be? (Remember to incorporate material from class in your answer.) **Your roommate doesn't understand the idea of comparative advantage. Even if the U.S. were better at producing goods than other countries (the U.S. had an absolute advantage), it is still the case that we face tradeoffs – whatever time/resources we put toward producing one good cannot at the same time be used towards the production of other goods. What we need to think about is not how good we are at making a good, but what it is we would have to give up to make the good (our opportunity cost). Other countries will have a comparative advantage in making some goods meaning we will have to give up less to trade for a good than what we would have had to give up to make the good ourselves. Thus, we can still gain from trade. This lets us focus our resources on what we have a comparative advantage on. Overall, there will be more jobs in the U.S. if there is trade and the country as a whole will be able to consume more. There will be some individuals who may lose their jobs and have difficulty retraining to work in the industries that are adding jobs, and we want to provide assistance to them, but we must understand that trying to restrict trade to protect jobs is very expensive. For some of the industries we looked at consumers are literally paying more than a million dollars more per year to save one job – it is hard to argue that saving the job is worth what we are giving up by restricting trade.**

3. The graphs below show the production possibilities frontiers for Japan and Korea. Use these graphs to answer the following questions.



- Does Japan have increasing opportunity costs? How do you know? **No, it does not have increasing opportunity costs. The production possibilities frontier is a straight line, so the slope is the same everywhere which means the opportunity cost must be the same everywhere. (See also question 1 part c.)**
- What is absolute advantage, and which country has the absolute advantage in the production of cars? of computers? **Absolute advantage means a country can produce more of the good per unit of labor than the other country. If they only made computers, Japan could make 600 while Korea could make 160, so Japan has an absolute advantage in computers. Similarly, Japan could make 200 cars (if all they did was make cars) while Korea can only make 160, so Japan also has an absolute advantage in cars.**
- What is comparative advantage, and which country has the comparative advantage in the production of cars? of computers? **Comparative advantage means you can make the good for a lower opportunity cost. We find opportunity cost by taking the slope of the PPF. For Japan, the opportunity cost of 1 more car = $(600 - 0) / (0 - 200) = -3$. Japan must give up 3 computers for each car it makes. For Korea, the opportunity cost of 1 more car = $(160 - 0) / (160 - 0) = -1$. Korea must give up 1 computer for each car. Since Korea has the lower opportunity cost (they don't give up as much to make a car), they have the comparative advantage in cars. If Korea has the comparative advantage in cars then Japan must have the comparative advantage in the other good (computers).**
- Which of the two countries (or both) can gain from trading with each other? If so, which country produces cars and which country produces computers? **The two countries can both gain from trading with each other if they make the good that they have the comparative advantage in. Korea makes cars and Japan makes computers.**
- What are the bounds for the possible terms of the trade? In other words, what is the **most** computers that would be an acceptable trade for one more car? What is the **least** computers that would be an acceptable trade for one more car? **Japan is not making cars, but they could if they wanted to. If they did, they would have to give up 3 computers for each car. That means they are not willing to trade any more than 3 computers for each car; if they had to trade more than 3, they would just make the cars themselves. Korea had to give up 1 bean for each car they made, so the least they are willing to accept is 1 bean for each car. Thus, the terms of trade are between 1 and 3 computers for each cars.**

f. Give an example of a possible trade that would make both countries better off? **Answers will vary but need to fit within the terms of trade in part e. For example if you were trading for 50 cars, you would have to be trading at least 50 ($50 * 1$) and at most 150 ($50 * 3$) computers for 50 cars.**

g. Japan can make more cars and more computers than Korea. Given this, the residents of Japan are skeptical as to why they should trade with Korea at all. They are thinking that they would be better off just producing their own cars and computers. Set the residents straight and let them know why they can gain from trade. **What the residents don't understand is the idea of opportunity cost. Yes they are better at making cars and computers than Korea, but whatever time they spend making cars is time they aren't spending making computers. They are a little bit better at making cars and a lot better at making computers. The opportunity cost to them of making cars is very low compared to Korea, so they should not make any cars and instead make lots of computers and then trade with Korea to get their cars. The key is that they can't do everything, so they must consider what they are giving up when they make cars. By trading with Korea, they are able to give up fewer computers for a car than if they made the car themselves and thus they end up at a point beyond their production possibilities frontier.**

h. Provide at least two arguments for why the residents of Japan may prefer to limit the amount of trade they do with Korea (or not trade with them at all). **Answers may vary but may include things like concern for some jobs (of car makers), especially if the people who lose their jobs making cars do not have the skills necessary to work making computers (remember, though, this comes at a steep price with consumers often paying a lot more money per job saved than how much the person actually earns on the job); they might want to limit trade for political reasons (like the U.S. and Cuba) to protest some things that Korea does that they don't like; perhaps for security reasons if they think having someone else make cars poses a security risk (where they couldn't get cars during times of war, for example).**

4. What would be the effect of the following on the demand curve, the supply curve, equilibrium price, and equilibrium quantity of gasoline sold in Kent? [note: you don't need any numbers – just describe **why** the curve would shift (or why it would not shift), **how** the curve would shift (in or out), and what would happen to equilibrium **price** and **quantity** (price go up or down; quantity go up or down)].

a. Hurricane Katrina wipes out gasoline refineries on the gulf coast.

This would shift in the supply curve for gasoline; even if the price of gas stayed exactly the same, there would be less gas offered for sale. The demand curve would not shift; the wiping out of refineries would not change how much gas people would want if the price of gas stayed the same. So supply shifts in, demand stays the same, equilibrium price goes up, and equilibrium quantity goes down.

b. There is an increase in the number of S.U.V.'s being driven in Kent.

This would shift the demand curve for gasoline out since SUV's and gasoline are complement goods – if there are more SUV's, then people will buy more gas even if the price of gas stayed the same. The supply curve does not shift – we move along the supply curve. The result is a higher price and a higher quantity.

c. The price of Hybrid Cars (that run on electricity as well as gas) falls.

This would shift the demand curve for gasoline in since Hybrid Cars don't need as much gas – if there are more Hybrid Cars, then people will buy less gas even if the price of gas stayed the same. The supply curve does not shift – we move along the supply curve. The result is a lower price and lower quantity.

d. The U.S. begins drilling for oil in the Alaska Wildlife Refuge (it is believed that there is a lot of oil there but thus far the U.S. has not drilled there because of environmental concerns).

This would shift out the supply curve for gasoline but would not affect the demand curve. The result is a lower price of gasoline and a higher equilibrium quantity.