

How to Study for Chapter 3: Exchange

Chapter 3 introduces the principle of **Comparative Advantage**.

1. Begin by looking over the Objectives listed below. This will tell you the main points you should be looking for as you read the chapter.
2. New words or definitions are highlighted in italics in the text and in red color. Other key points are highlighted in bold type and in blue color.
3. You will be given an In Class Assignment and a Homework assignment to illustrate the main concepts of this chapter. The teacher will teach the basic principle in the class. You are responsible for the story of California agriculture and how the principle of comparative advantage applies to it.
4. When you have finished the text and the Test Your Understanding assignments, go back to the Objectives. See if you can answer the questions without looking back at the text. If not, go back and re-read that part of the text. When you are ready, try the practice quiz for Chapter 3.

Objectives for Chapter 3: Exchange

At the end of Chapter 3, you will be able to answer the following:

1. Explain what is meant by "**specialization**" and "**division of labor**"?
2. Define "**absolute advantage**".
3. Explain why, if one person has an absolute advantage in one activity, and a second person has an absolute advantage in a different activity, they are better-off by specializing and exchanging.
4. Define "**comparative advantage**".
5. Explain why, even if one person has an absolute advantage in both activities, they are better-off by specializing and exchanging if their comparative advantages are different.
6. Explain how comparative advantage is determined?
7. Explain the "**law of comparative advantage**"?
8. Name some problems that might result from people specializing and trading with each other.

Chapter 3

Exchange (Most recent revision June 2004)

As we learned earlier, every economy must answer the questions what to produce?, how to produce?, and for whom to produce? Market economies answer these questions through a process of exchange. The argument that exchange allows the highest possible standard of living dates back to the Scottish philosopher, **Adam Smith**, more than 200 years ago. **The basic argument is that exchange increases overall production by increasing specialization and division of labor** (*division of labor refers to the way the tasks are divided and who does which task*).

Why do you not do everything for yourself? Why do you not grow your own food, build your own home, make and fix your own clothes, and so on? The answer is obvious; you are better at some things than others. You are better off if you specialize in those things you do best. Assume you are very good at fixing cars. You are best off if you devote all of your work time to fixing cars. You will fix more than just your own car. The additional cars you fix will be your surplus production. You will then exchange this surplus with someone who specializes in producing food or with someone who specializes in producing clothing. As a result of specializing, you learn your job well. You may even learn it so well that you are capable of developing new machines or new techniques to improve your ability to produce. And you will not have to waste time going from one task to another. The result is that there are more goods and services to go around --- more fixed cars, more food, and more clothing. Specialization, of course, is a very common phenomenon. Doctors specialize in just one part of the body or in one disease. Baseball players specialize in one position. Radio stations specialize in just one type of music. Teachers specialize in just one academic subject. And so on.

This argument has been used to explain the division of labor within the traditional family. Assume that Jack can work in the labor market and earn \$100,000 per year. Or he can work at home and produce services such as cleaning, cooking, and child-raising that are worth \$5,000 per year (that is, the family would have to pay \$5,000 to buy the same services). Jill can work in the labor market for \$15,000 per year or can work at home, producing services worth \$20,000 per year. In this example, Jack is better at working in the labor market because he can earn more. In the language of economics, Jack has *an absolute advantage* in working in the labor market. Jill has *an absolute advantage* in working at home because she is better at these tasks. The result is that the family is best off financially if Jack works in the labor market and Jill works at home. Their combined standard of living (\$100,000 in income and \$20,000 in the value of services produced at home) is \$120,000. No other combination can bring more. If Jill works in the labor market and Jack works at home, their standard of living is only \$20,000. No combination of work in the labor market and work at home can bring the family more than \$120,000. (Try this for yourself. How much would the family gain if each worked one-half year in the labor market and one-half year at home?)

In the early nineteenth century, British economist **David Ricardo** extended the analysis. What would be the best result, he asked, if someone were better at everything than the other person? Suppose you are better than I am at each of two tasks. On task 1, you are much better than I am. On task 2, you are just a bit better than I am. Since your advantage over me is greatest for task 1, we say that you have *a comparative advantage* in task 1. Since your advantage is least for task 2, we say that you have *a comparative disadvantage* in task 2.

Alternatively, I have a comparative advantage in task 2; even though you can do task 2 better than I, my disadvantage is least for this task. **Ricardo showed that the people would still be better off specializing in those tasks for which they have a comparative advantage and trading with others.** This principle is commonly referred to as *the law of comparative advantage*.

To illustrate the law of comparative advantage, assume that a lawyer can type faster than her secretary. Should the lawyer both practice law and also do all of her own typing? Of course, the lawyer should not do her own typing. Every hour spent typing would have a very high opportunity cost --- an hour not spent in court nor preparing for court. Hours spent in court commonly are worth \$400 or \$500 each. The high opportunity cost would be much greater than the time that could be saved by typing faster. **The lawyer should specialize in going to court and let the secretary specialize in typing, even though the lawyer types faster.**

Test Your Understanding. (Answer the following question before reading the next part of the text)

Baseball fans know that one of the greatest pitchers of all time was Babe Ruth. He pitched for Boston early in his career and has pitching records that still have not been broken. Nonetheless, he was converted into a right fielder and home run hitter. First, why did he not do both --- pitch and hit home runs? Why did Babe Ruth not choose pitching, rather than play right field?

The answer is that each task requires many hours of practice every week. There are only so many hours available to practice. One who tries to do both tasks is likely to have insufficient practice time for each task and therefore is likely to be mediocre at each task. Like most other people, baseball players are better if they specialize. Why did Babe Ruth not choose pitching over right field? The answer is that he had a comparative advantage in batting. He was a better pitcher than others of his day. But there were other pitchers who were very good. He was a much better batter than others of his day. His record for home runs in a season lasted for 34 years. His record for home runs in a career lasted until 1974. His advantage over others as a home run hitter was much greater than his advantage over others as a pitcher. Therefore, it was best for him to specialize in hitting home runs and let others do the pitching.

Test Your Understanding.

Bob can work in the labor market for \$30,000 per year. He can provide services at home worth \$10,000 (Bob is not very good at housework.) Mary can work in the labor market as a lawyer for \$210,000 per year. She can provide services at home worth \$30,000. Again, the value of the services provided at home is based on the amount that would have to be paid to buy them in the market. For simplicity, assume that the choice of both working is not feasible. Some work at home must be done since they have a child, they have to eat, they have to clean and fix the home, and so forth. In this example, who has the comparative advantage in working in the labor market? Who has the comparative advantage in working at home? For the family to have the greatest total gain, who should work in the labor and who should work at home? Explain why.

Smith and Ricardo focused their analysis on nations, not families. The same principle holds: **nations are better off if they specialize in those products for which they have a comparative (not absolute) advantage and trade with other countries.** This principle of comparative advantage will be developed in more detail in Chapter 27 on International Trade.

But before we leave our families, we need to consider some important questions. Why was

Jack better than Jill at work in the labor market? Did it result naturally (Jack was the bigger person) or was it the result of training (Jack got a degree in engineering while Jill never went to college)? Why was Jill better at working at home than Jack? Did it result naturally (a special bonding between the mother and the infant) and was it the result of socialization (Jack was never taught how to cook, wash clothes, or change diapers)? Ultimately, the answers to these questions tell us if comparative advantage is something that is a given or if comparative advantage is something that can be changed. In addition, we can ask if there are effects from specialization beyond the economic gain that it provides. For example, when a couple specializes, the one who works in the labor market (commonly the husband) typically has greater power over decisions within the family than is true if both people work. And the one who works at home (typically the wife) may become totally dependent on the husband. Families that specialize tend to operate very differently from those that do not. The same argument will need to be considered for nations. **Can comparative advantage within nations be changed? And does specialization and trade have effects beyond the economic gain that it provides** (such as dependence and effects on the relative power of nations)? These questions may cause us to question the overall value of specialization and exchange. But despite these questions, the argument is very powerful. *People and nations gain economically if they specialize in those activities for which they have a comparative advantage and trade with each other.* This must be the main reason that we see specialization and exchange in virtually all types of societies, families, tribes, nations, and indeed the world. In modern times, most exchange takes place in markets. It is the operation of markets that is the subject of this course.

Example 1: Agriculture in California

In the decades after 1880, the state of California produced a type of agriculture that had not been known in this country before. It was based on an extreme form of specialization: the large-scale production of wheat. Wheat was first planted in California in the 1840s. Wheat is a good commodity for long distance trade. It does not perish over many days and it is relatively light. It was a good crop to send back on the ships that brought the gold miners and their supplies to California. When the Southern Pacific railroad announced in 1867 that it would build a line through the San Joaquin Valley, connecting San Francisco and Sacramento with Los Angeles, land speculators bought land in the Valley in the hopes that the land values would soon rise. These speculators opened up wheat production in the San Joaquin Valley, sending their wheat up the San Joaquin River to the Delta and then on to San Francisco. In San Francisco, the wheat would be put on ships and sent to the Eastern United States or to Europe. Yet, wheat had major disadvantages for California. It depleted the soil. It required great amounts of land, preventing the concentrations of people from forming that would have stimulated the economic development of the Central Valley. And it was not a crop in which California had a comparative advantage. Other areas also produced and sold wheat, lowering the price of wheat. As the price of wheat fell in the 1870s, the value of the land fell, and the wheat boom came to an end.

Beginning in the 1870s, railroads and banks (especially the Bank of California) invested in irrigation projects – canals and ditches that connected to a major river. To earn a profit on this investment, they would sell their land, mostly to people wishing to leave the cities, in relatively small blocks. The cost of one of these pieces of land was quite high. The other costs -- seed, barns, wells, pumps, wagons and tools, and so forth -- made it difficult for most people to

become farmers. **The high costs of entering California agriculture made it essential to plant high value crops.** This meant that the growers needed to find exactly those crops in which they had a comparative advantage. This was difficult because of their lack of knowledge and because of the great diversity of climates and soils throughout California. A scientist, Eugene Hilgard, was brought to the University of California (in Berkeley). He created the first agricultural experiment stations in California, conducting many studies of the various soils of California. Largely because of these studies, the area along the Sacramento River specialized in pears, northern Contra Costa County specialized in almonds, the Santa Clara Valley specialized in prunes, plums, and apricots, large parts of southern California specialized in oranges, the Santa Cruz Mountain area specialized in apples, the middle of the San Joaquin Valley specialized in grapes for raisins, and so forth. Even within these categories, California agriculture became highly specialized. For example, of the many varieties of pears, California growers produce mainly Bartletts. **By such specialization, the yields per acre were extraordinarily high and the profits earned by the growers were fabulous.**

Being so specialized carries several risks. First, if a crop perishes in transit or if the price of that crop falls, there is the possibility of financial ruin. So to control the price, California growers developed the packinghouse and the agricultural cooperative. We shall analyze these in a later chapter. Second, if the labor is not available or is too expensive, there is another possibility of financial ruin. So the growers developed the migrant labor system, also analyzed in a later chapter. And third, being so specialized brought another risk – insects. When lands have many different plants, they bring many different types of insects. These insects act as predators on each other and as competitors for food, controlling the populations of insects. With specialization, there were no predators to destroy the insects that fed on the plants. Their populations could grow unabated. California growers refused to respond by diversifying their crops. Instead, they responded with chemicals. The main chemical used in the 19th century was arsenic. (Two university professors started a company in 1907, California Spray Chemical, which achieved great success by assuring that the quality of the chemicals was high. This company marketed its high quality chemicals under the brand name “ORTHO”.) So, while specialization brought large economic rewards to the growers, it also had other important effects on the California population and on the California environment..

***Test Your Understanding*.**

Northern San Diego County specializes in horticulture --- the production of flowers for sale. Use the principle of comparative advantage to explain why this specialization has developed.

Practice Quiz for Chapter 3

1. If one can produce a product more efficiently than someone else, one has a/an
a. division of labor b. specialization c. absolute advantage d. comparative advantage
2. If one can produce Products A and B more efficiently than another person, but is able to produce Product A at a much lower cost while producing Product B at a slightly lower cost, one has a ___ in Product A.
a. division of labor b. specialization c. absolute advantage d. comparative advantage
3. You do one task and I do another is called
a. division of labor b. specialization c. absolute advantage d. comparative advantage

4. Focusing exclusively on one task is called
- a. division of labor
 - b. specialization
 - c. absolute advantage
 - d. comparative advantage
5. Dave earns \$10 per hour working in the labor market. His work at home is worth \$5 per hour. Diane earns \$15 per hour working in the labor market. Her work at home is also worth \$15 per hour. Which of the following statements is/are true?
- a. Dave has a **comparative advantage** in the labor market while Diane has a comparative advantage in working at home
 - b. Dave has a **comparative advantage** in working at home while Diane has a comparative advantage in the labor market
 - c. Dave has a **comparative advantage** in both the labor market and work at home
 - d. Diane has a **comparative advantage** in both the labor market and work at home

Answers: 1. C 2. D 3. A 4. B 5. A