

3 PRODUCTION POSSIBILITIES

OVERVIEW

1. The production possibilities model shows all possible combinations of two different outputs the society is capable of producing with a fixed amount of resources and unchanging technology.
2. Movements along the production possibilities curve mean getting more of one good and less of the other. We can calculate the opportunity cost of a unit of one good in terms of the amount of the other good given up.
3. A bowed-out production possibilities curve is caused by increasing opportunity cost. The law of increasing costs says that each additional unit of one good will require greater and greater sacrifices of the other good.
4. The law of increasing costs exists because resources are not equally good substitutes in the production of goods.
5. Positions inside the production possibilities result from unemployed or underemployed resources.
6. Positions outside the production possibilities are unattainable.
7. The production possibilities will increase when new resources or new technology is discovered.

MATCHING

- | | | | |
|---------|--------------------------------|----|--|
| _____1. | technology | a. | to increase the production of one good requires ever larger sacrifices of the other good |
| _____2. | production possibilities model | b. | a model showing all possible combinations of two different goods a society is capable of producing |
| _____3. | law of increasing costs | c. | the different ways that resources can be put together to produce output |

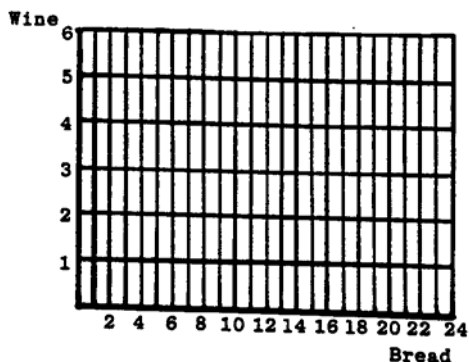
TRUE-FALSE

- _____ 1. The law of increasing costs causes the production possibility to bow out.
- _____ 2. The law of increasing costs causes the production possibility to have a negative slope.
- _____ 3. Only unemployed resources results in points inside the production possibilities.
- _____ 4. The negative slope of production possibilities says that there is an opportunity cost of gaining more of one good.
- _____ 5. The law of increasing costs is primarily due to the fact that resources are imperfect substitutes in production.
- _____ 6. An increase in the amount of labor will allow the production possibilities to swing out on one axis but not the other.

PROBLEMS

1. a. Graph the following production possibilities data. After you have plotted the points, connect them with a line.

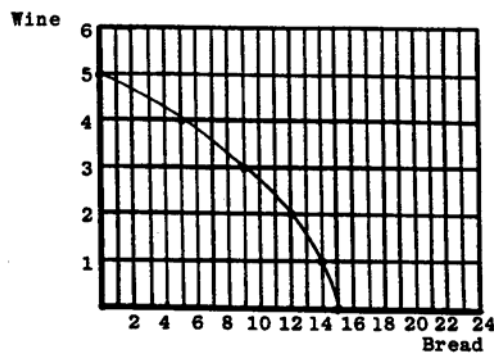
Wine (vats)	Bread (loaves)
6	0
5	6
4	11
3	15
2	18
1	20
0	21



- b. Start at 0 wine. How much bread can be produced? _____
- c. Increase wine production to 1. By how much does bread go down? _____
- d. What is the opportunity cost of the first vat of wine? _____
- e. Increase wine production from 1 to 2. By how much does bread go down? _____
- f. What is the opportunity cost of the second vat of wine? _____
- g. Increase wine production from 2 to 3. By how much does bread go down? _____

- h. What is the opportunity cost of the third vat of wine? _____
- i. Increase wine production from 3 to 4. By how much does bread go down? _____
- j. What is the opportunity cost of the fourth vat of wine? _____
- k. Does the law of increasing costs hold? What evidence do you have? _____
- l. What does the law of increasing costs do to the production possibilities? _____
- m. Draw the point 3 vats of wine and 6 loaves of bread on the graph. What does the point mean? _____
- n. Draw the point 4 vats of wine and 15 loaves of bread on the graph. What does the point mean? _____
2. Suppose that we are now told that more workers are available and the new production possibilities is given by the following table.

Wine (vats)	Bread (loaves)
6	0
5	6
4	11
3	15
2	18
1	20
0	21



- a. The production possibilities from problem 1 is reproduced on the graph. Plot the new production possibilities on the same graph. What happened to the production possibilities? _____
- b. Suppose that a new technology is discovered for making bread. Draw the result on the graph. What happened to the production possibilities? _____

IN THE NEWS

1. In preparation for the 1980 Olympics in Moscow, there was a substantial amount of construction and repair. The Soviet Union devoted vast amounts of labor, raw materials, and machinery to these projects. Almost all non-Olympic construction stopped.
- a. How does this reading illustrate production possibilities? _____
- b. What are the alternative goods? _____

2. Some opponents of the Soviet Union argued that economics was the best weapon the United States had against the Soviets. When the United States increased its spending on military goods, the Soviets had to do the same. The problem for the Russians was that more military goods had a large cost in consumer goods which were already very limited. The reduction in the availability of consumer goods increased social unrest in Russia.
 - a. How does this reading illustrate production possibilities? _____
 - b. Would opponents of the Soviet Union see a favorable application of the law of increasing costs? _____
 - c. Why does the United States face a similar production possibilities? _____

3. The unemployment rate in the United States was 9.7 percent in 1982 and has fallen since to about 5.5 percent. Unemployment rates higher than 2 percent were uncommon in communistic Russia or China, where idle labor was assigned a task.
 - a. How would a slowdown of employment and production be recorded in the production possibilities of a capitalistic country? _____
 - b. In a communist country, where labor is assigned to any task, unemployment may not be a problem. But could resources be underemployed? Explain. _____

 - c. How would underemployed resources appear on production possibilities? _____

4. During the 1960s, the administration of Lyndon B. Johnson initiated a war on poverty in the hope that we could eliminate poverty in America. At the same time, there was a major build-up of American forces in Vietnam. The resources of the society were torn between these competing uses, and the administration pushed hard for both causes.
 - a. Use production possibilities. If we believe that we can allocate more resources to reduce poverty and more resources to wage a war in Vietnam, what must we believe to be true? _____
 - b. Can we continue to get more of both forever? Explain. _____

PRACTICE TEST

Circle the correct answer.

1. While on the production possibilities curve, we cannot produce more of both goods because:
 - a. resources are fixed.
 - b. resources are fully employed.
 - c. technology is fixed.
 - d. all of the above.

2. A bread and wine production possibilities illustrates opportunity cost by showing:
 - a. how much bread we have to give up to get more wine.
 - b. the price of bread in dollars.
 - c. the price of wine in dollars.
 - d. the number of bakers employed.

3. For a wine and bread production possibilities with the information shown, find the opportunity cost of the third loaf of bread.

Vats of wine	Loaves of bread
10	0
6	1
3	2
1	3
0	4

- a. 4 vats of wine
 - b. 3 vats of wine
 - c. 2 vats of wine
 - d. 1 vat of wine
-
4. The production possibilities bows out because the opportunity cost of another unit of a good:
 - a. rises as more is produced.
 - b. falls as more is produced.
 - c. does not change as more is produced.
 - d. is unrelated to the bowing out of the production possibilities.

 5. When a society chooses to increase its production of capital rather than consumer goods, this means:
 - a. the production possibilities will be a straight line.
 - b. the society will operate inside its production possibilities curve.
 - c. production possibilities will shift in.
 - d. it is emphasizing future growth.

ANSWERS

Answers – Production Possibilities

Matching

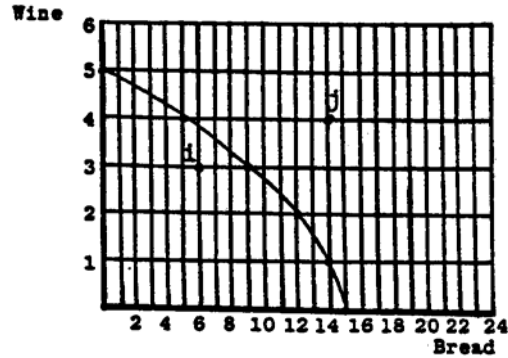
1. c
2. b
3. a

True-False

- | | | |
|------|------|------|
| 1. T | 3. F | 5. T |
| 2. F | 4. T | 6. F |

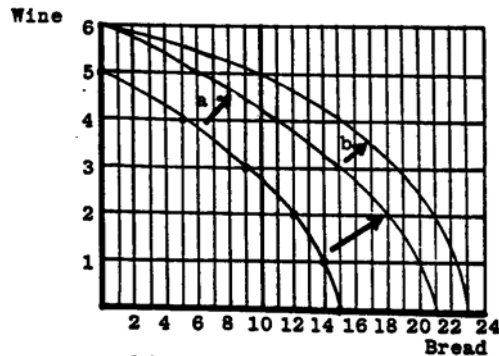
Problems

1.a.



- b. 15 loaves
- c. 1 loaf
- d. 1 loaf
- e. 2 loaves
- f. 2 loaves
- g. 3 loaves
- h. 3 loaves
- i. 4 loaves
- j. 4 loaves
- k. Yes, because the cost of each additional vat of wine is greater than the cost of the previous vat of wine.
- l. The law of increasing costs causes the production possibilities to bow out.
- m. Points inside the production possibilities mean that either resources are unemployed or underemployed.
- n. Points outside the production possibilities are impossible to achieve.

2. a. It shifted out.



- b. The production possibilities curve shifts out on the bread axis but not on the wine axis.

In the News

1.
 - a. Resources used to provide for the Olympics cannot also be used to produce goods for the citizens of the Soviet Union.
 - b. More Olympic goods means less non-Olympic goods. The resources could be used to produce apartments or houses, food for the people, cars, or washing machines.
2.
 - a. If Russia uses more resources for defense, it has fewer resources left for consumer goods.
 - b. The law of increasing costs means that for each additional unit of military goods, ever increasing amounts of consumer goods must be given up. Opponents of the Soviet Union would see the effect of increasing costs contributing to more unrest in Russia.
 - c. The United States faces the same alternatives because to get more military goods, fewer resources are available for the production of consumer goods.
3.
 - a. In a capitalist country, the unemployed resources would place the country inside the production possibilities.
 - b. If labor is assigned to jobs, the labor may not be assigned to the job it can do best. Thus skills may be wasted.
 - c. The underemployment will also put the country inside its production possibilities curve.
4.
 - a. It must be believed that there are unemployed resources. Otherwise we could not use more resources for both purposes. In fact though, resources were already fully employed. Chapter 16 discusses the consequence of this excess demand on resources.
 - b. Eventually, we will employ all available resources. Then, getting more of one good requires getting less of another.

Practice Test

- 1.d., 2.a., 3.c., 4.a., 5.d.