

Economics 1
Study Questions on S&D

SUPPLY AND DEMAND

Demand Side

1.
 - a. The law of demand asserts that as the price of a good decreases, the demand curve for that good should shift to the right. True or false, explain.
 - b. The law of demand claims the demand curves have negative slopes. True or false, explain.
 - c. The law of demand claims that as the price of a good rises, people stop wanting the good. True or false, explain.
 - d. The law of demand claims that as the price of a good rise, the quantity demanded will by a lot, other things constant.
2. How would each the following events shift the demand curve for coffee:
 - a. An increase in income. Assume that coffee is a normal good.
 - b. An increase in the price of cream.
 - c. A decrease in the price of tea.
 - d. Buyers expect the *future* price of coffee to rise.
 - e. A large and successful advertising campaign by coffee producers occurs.
 - f. The price of coffee falls.
3. Which of the following is likely to cause an *decrease in the demand* for medical care:
 - a. An increase in the number of people on low-cholesterol diets.
 - b. A decrease in the price of medical care.

Supply Side

4. Distinguish between a “change in supply” and a “change in quantity supplied”. What causes each to occur?
For each of the following statements, indicate whether you agree or disagree with it and explain why:
 - a. “A higher wheat price causes an increase in the supply of wheat”.
 - b. “A lower quantity supplied of cars causes a higher price for cars”.
5. How would each of the following events affect the supply curve for crude oil:
 - a. A major technological improvement in extracting oil from the ground occurs.
 - b. The cost of labor rises.
 - c. Oil producers expect the *future* price of oil to fall.
 - d. The price of crude oil rises.

Supply and Demand model

6.
 - a. Define: Equilibrium price, shortage and surplus. What role does the money price of a good play in eliminating shortages or surpluses?
 - b. For each statement, indicate whether economic definitions are being used correctly: “Drought has reduced the wheat crop and thus created a shortage of wheat.” “Countries with large populations experience a surplus of workers.”

Supply and Demand: Applications

7. “If there is an increase in demand, the price rises, but the higher price decreases demand and increases supply, thus reducing the price back to its original level.” Explain what is wrong with this statement and correctly state the effect of an increase in demand.
8. Using supply and demand graphs, explain what will happen to the equilibrium price and quantity of almonds grown in the U.S. when:
 - a. New Environmental Protection Agency regulations prohibit the use of certain pesticides and herbicides widely used by almond growers to reduce crop damage.

- b. there is a development of an extensive, efficient almond-growing industry in other countries. This creates a substitute for US grown almonds.
 - c. there is an large increase in the demand for raisins (which can be grown on almonds land).
 - d. Almond farmers in California face lower prices for irrigation water. Almonds are an irrigated crop.
 - e. both (a) and (b) occur.
9. Using supply and demand graphs, explain what will happen to the equilibrium price and quantity of gasoline in California:
- a. World events lead to a rise in the price of crude oil. Crude oil is an input the production of gasoline.
 - b. Mild winter weather on the East Coast results in the drop in the demand for heating fuel (which uses crude oil as an input).
 - c. A surge in travel during the summer months.
 - d. A series of gasoline refinery accidents in California.
 - e. Both (d) and (c) occur.
10. Over the course of the past century or so the quantity of iron produced and consumed has increased dramatically. Over that same period the price of iron (adjusted for inflation) has decreased. Population has risen substantially over this period of time. Use a supply and demand model to explain the change in equilibrium P & Q.
11. Multiple choice question (circle one): Which of the following can explain a rise in the price of oranges.
- a. Consumer income has fallen. Oranges are a normal good.
 - b. The price of peaches (a substitute good) has decreased.
 - c. The demand for residential housing in counties that devote large tracts of land to orange orchards has risen dramatically.
 - d. The price of water used to irrigate orange orchards has fallen.
12. Multiple choice question (circle one): Tin and aluminum are substitutes. If the price of tin rises we would expect the equilibrium price of *aluminum* to ____ and the equilibrium quantity of *aluminum* to ____.
- a. rise; rise.
 - b. fall; fall.
 - c. fall; rise.
 - d. rise; fall.
 - e. none of the above.
13. Multiple choice question (circle one): Suppose the government imposes new environmental regulations that cause the cost of producing cars to increase. At the same time consumer income rises. Cars are a normal good. We would expect the equilibrium price of cars to ____ and the equilibrium quantity of cars to ____.
- a. rise; rise.
 - b. fall; fall.
 - c. rise; fall.
 - d. fall; rise.
 - e. uncertain; fall.
 - f. fall ; uncertain.
 - g. rise; uncertain.
 - h. uncertain; rise.
 - i. uncertain; uncertain.

14. Multiple choice question (circle one): If the level of tuition rises we would expect the equilibrium price of *textbooks* to ____ and the equilibrium quantity of *textbooks* to _____.

- a. rise; rise.
- b. fall; fall.
- c. fall; rise.
- d. rise; fall.

15. Suppose someone claims to have discovered an exception to the law of demand by arguing as follows: “I have noticed that price of housing has risen, yet people are buying even more houses! Economists claims as price rises, the quantity demanded should go down, but I see it going up!” Explain what is wrong with this statement.

Answers for Study Questions-S&D

- 1.a.False. A change in price does *NOT* shift the demand curve, but causes a *movement along a given* demand curve. In this case, a decrease in price causes a movement **down** along the demand curve. See Figure 1a. Don't forget that a shift means we get an entirely new demand curve.
- 1b. True. The law of demand claims that as price increases, quantity demanded decreases, other things constant. This implies a negatively-sloped curve (that is, a downward sloping demand curve).
- 1c. False. The law of demand says nothing about “wants” or “needs”. It merely claims that as the price of a good increases, the amount of the good people are ABLE and WILLING to purchase decreases, other things constant. For example, as the price of ice cream rises, I may be unable or unwilling to purchase as many ice cream at this higher price. That does not mean that I stop deriving satisfaction from consuming ice cream (that is, I will “want” ice cream).
- 1d. False. It does not say **BY HOW MUCH** quantity demanded will be impacted when price rises (or falls). It only claims that price and quantity demanded move inversely, other things constant.
2. a. Increase in demand (rightward shift). Normal good, so higher income increases demand See Figure 2a.
2. b. Since cream is a complement to coffee, this would cause a decrease in demand for coffee. (leftward shift). See Figure 2b. Recall that the definition of a complement is this: any two goods X and Y are complements if as the price of X rises, the demand for Y falls (that is, price of X and demand for Y are inversely related).
- 2.c.Tea and coffee are substitutes, so a decrease in the price of tea would cause a decrease in demand for coffee. See Figure 2c. Recall that the definition of a substitute is this: any two goods X and Y are substitutes if as the price of X rises, the demand for Y rises (that is, price of X and demand for Y are move in same direction).
- 2d.This would cause the current demand for coffee to rise. See Figure 2d. The logic is that consumers would have a higher demand for coffee now in anticipation of have to face a higher price in the future.
- 2e. Increase in demand. See Figure 2e. This is a change in “tastes and preferences”.
- 2f. **NO SHIFT**. This would cause a movement along a given demand curve, not a shift.
3. a.We would expect this to reduce health problems and thus decrease the demand for medical care (leftward shift).
- b. A decrease in the price of medical care would cause a movement down along the D curve, **NOT** a shift.
4. A *change in quantity supplied* refers a movement along a given supply curve. The only thing which causes a movement along a given supply curve is a change in the price of the good. See Figure 4a.

A *change in supply* refers to a shift in the supply curve (that is, get a new supply curve). See Figure 4b. Shifts are caused by a change in “other things”. These “other things” (shift variables) include:

- a. Technology. Better technology lowers production costs and increases supply.
- b. Input prices. Lower input prices lowers production costs and increases supply.
- c. Seller expectations of future prices. A higher expected future price (for example) would reduce the incentive to sell now since expect to get a higher price by storing and selling in future, thus current supply decreases.
- d. Changes in the natural environment. Events such as droughts, floods, etc impacts the supply of certain goods.
- e. Number of sellers. The market supply curve is the horizontal summation of all individual supply curves and therefore as then number of sellers rise the market supply increases.

4. a. Disagree. A high wheat price causes an *increase in quantity supplied* (movement up along the supply curve) is how it should read.

4b. Disagree. A lower quantity supplied (movement along a given supply curve) of cars **is caused by** a lower price. This statement is confusing a movement along a supply curve with a shift in the supply curve. The correct way to express it is “A decrease in supply (leftward shift) causes a higher price”.

5a. Increase in supply (rightward shift).

5b. Decrease in supply (leftward shift).

5c. Current supply increases.

5d. NO SHIFT. An increase in price causes a movement up along a given supply curve.

6. a. Equilibrium price (“market-clearing price”): the price at which quantity supplied equals quantity demanded. In other words, it is the price at which the amount of a good sellers are able and willing to sell (quantity supplied) equals the amount of a good buyers are able and willing to buy.

Shortage: a situation in which quantity demanded exceeds quantity supplied at some given price. (See Figure 6b). Surplus: a situation in which quantity supplied exceeds quantity demanded at some given price. (See Figure 6a) If there is initially a shortage, then competition among buyers will bid up the price. The higher price will cause a decrease in quantity demanded (represented on a graph as a movement up along the demand curve) AND an increase in quantity supplied (represented on a graph as movement up along the supply curve). If there is initially a surplus, then competition among sellers will bid the price down. The lower price will cause an increase in quantity demanded (represented on a graph as a movement down along the demand curve) AND a decrease in quantity supplied (represented on a graph as movement down along the supply curve).

6.b. Not being used correctly. A reduction in the supply of wheat will lead to an increase in the equilibrium price of wheat. At this new price, quantity supplied again equals quantity demanded, therefore there is no shortage. The statement is not using the word “shortage” in the proper way. A shortage DOES not refer to a decrease in supply—if price is allowed to achieve its equilibrium level, then quantity supplied equals quantity demand, thus no shortage. (NOTE: An economist would put it this way—the drought has indeed made wheat more *scarce* but there is no shortage at the equilibrium price. Scarcity is always with us, shortages can be removed by allowing price to clear the market)

No, not used correctly. Large populations (or more accurately, larger populations) by increasing the supply of labor, will cause a decrease the equilibrium price of labor (wage rate). At this new equilibrium wage the quantity of labor supplied will equal the quantity of labor demanded, thus there is no surplus.

7. The last part of this statement confuses a shift with a movement along a curve. The statement should read: “ If there is an increase in demand, the price rises, the higher price then causes a decrease in quantity demanded (a movement down along the new demand curve) and an increase in quantity supplied (a movement up along the supply curve).”

8. a. This government regulation will make it more costly for sellers to produce almonds and will therefore reduce the supply of almonds (leftward shift). This will cause the equilibrium price to rise and the equilibrium quantity to fall. See figure 8a.

8.b. Almonds grown in other countries can be considered a substitute for U.S. almonds. Thus the development of this alternative source of almonds will cause a decrease in the demand for U.S. almonds (leftward shift). Equilibrium price falls and equilibrium quantity falls. See figure 8b .

8c. The increase in demand for raisins, which can be expected to increase the price of raisins, will cause a rise in the opportunity cost of using land for almonds (since the land could also be planted in raisins) and therefore some farmers will reduce the amount of land being used to grow almonds and switch to growing

raisins. Thus, there will be a decrease in the supply of almonds (leftward shift). Equilibrium price increases and equilibrium quantity decreases. See figure 8c.

8d. Irrigation water is an input into the production of almonds. This decline in this input price will increase supply (rightward shift). Equil. price falls and equil. quantity rises. See figure 8f.

8e. There would be both a decrease in supply AND a decrease in demand. It is uncertain what happens to price, but quantity falls. See figure 8g.

9 a. An increase in the price of crude oil, which is an input in the production of gasoline, will cause the supply of gasoline to decrease (leftward shift). This shift will result in a higher equilibrium price and a lower equilibrium quantity. See figure 9a.

9.b. The drop in the demand for heating fuel will lead to a lower price of heating fuel and lower quantity supplied. Since it uses crude oil as input, this would lower the demand for crude oil used for heating fuel and this lower crude oil prices. The lower crude oil price would imply that the supply of gasoline increases. P falls and Q rises. See figure 9b.

9c. Increase in demand for gasoline. Higher equil. P and Q. See Figure 9c.

9d. Decrease in supply of gasoline. Higher P and lower Q. See Figure 9d.

9e. Demand increases and Supply decreases. Price rises, but it is uncertain what happens to Q. See Figure 9e.

10. The rising population would increase demand which BY ITSELF would tend to cause price to rise. However, given that price actually fell, then this outcome can be explained by an even greater increase in supply over this period of time. The dramatic changes in the technology of mining iron ore and producing iron could explain this supply shift. See Figure 10.

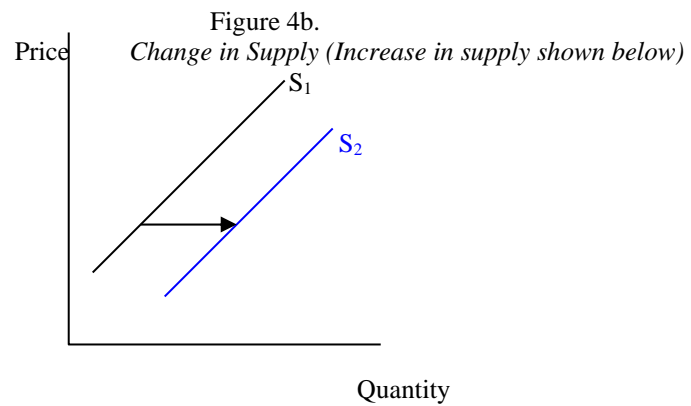
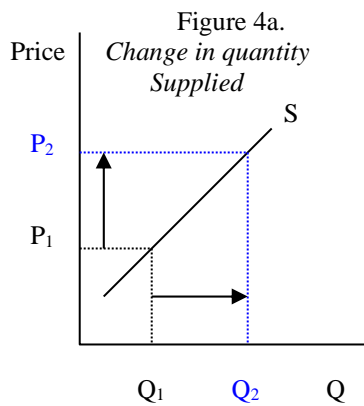
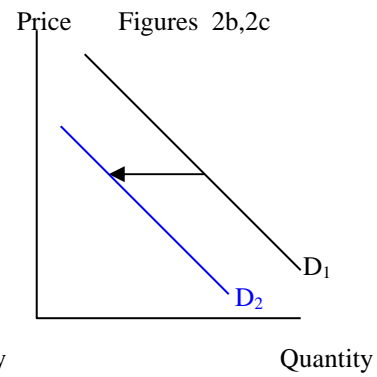
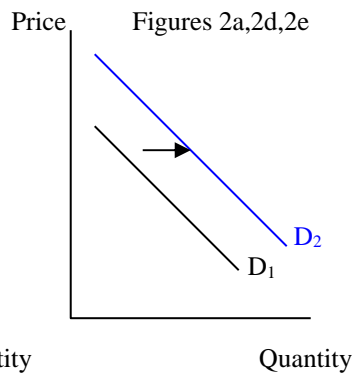
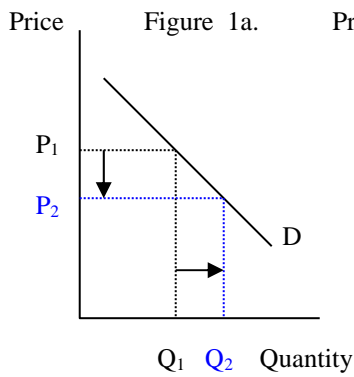
11. The method to answer such questions in which the we are given that there is some price change and/or quantity change is to work in reverse: Figure out which type of shift can explain, for example, a rising price. We then determine that only a decrease in supply and/or an increase in demand can explain the rising price. We now look for an event that would cause such a shift. The answer is (c). The rising demand for residential housing would make it profitable to convert some orchard land into land used for residential housing. Thus, the supply of oranges falls. The option (a) does not work since this event predicts a lower price. Option (b) also predicts a lower price of oranges. Same for option (d).

12. The rise in the price of tin would cause an increase in demand for aluminum since they are substitutes. This would cause the equilibrium price and quantity of aluminum to rise. Answer is (a).

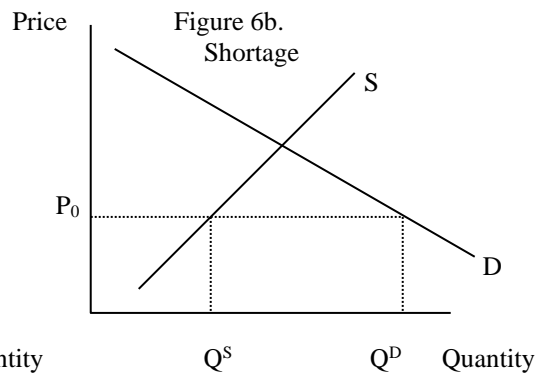
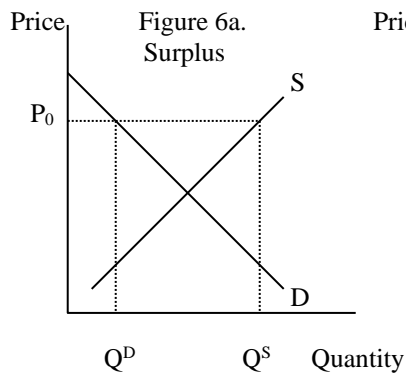
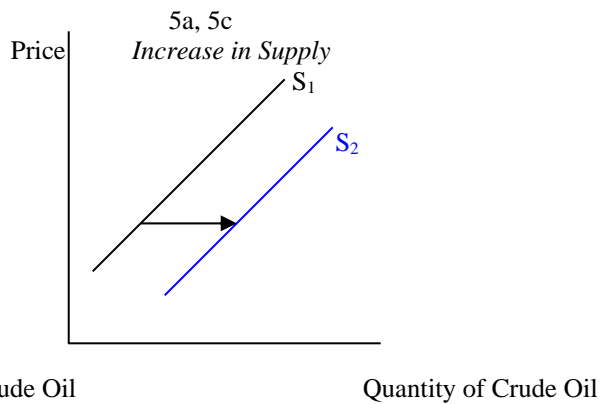
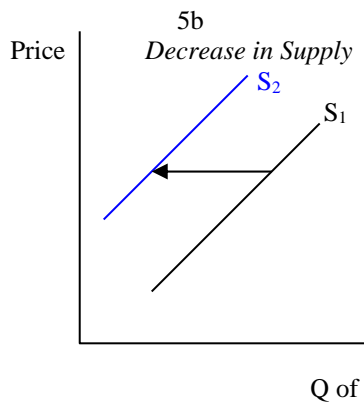
13. The regulations decrease the supply of cars and the increase in incomes causes the demand for cars to rise. The price will rise but it is uncertain what happens to quantity. Answer is (g).

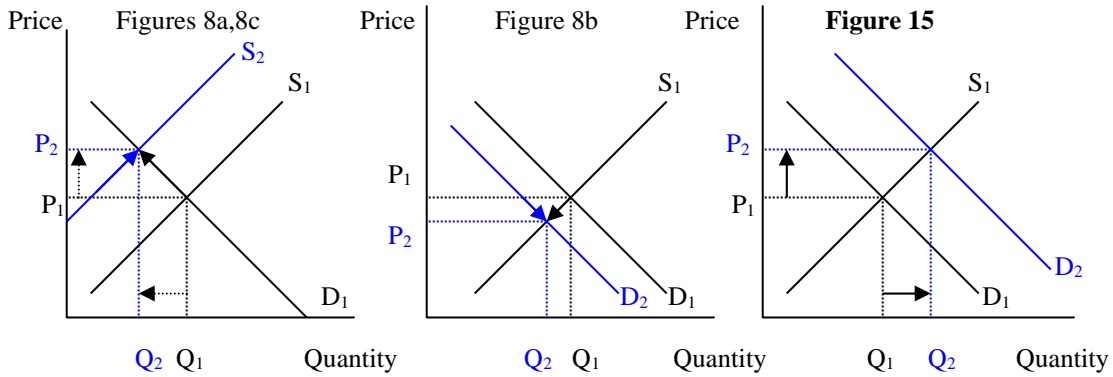
14. Complementary goods. So as the tuition rises, the demand for textbooks falls, and this leads to a decrease in P and Q. Answer is (b).

15. This statement makes a classic and widespread mistake. The law of demand claims that as price rises, quantity demanded falls, OTHER THINGS CONSTANT. This is in turn tied in with the mistake of confusing a shift with a movement along a curve. Suppose income rises (as during an economic boom). If housing is a normal good then the demand for housing will rise (rightward shift). So “other things” are NOT constant. At the new equilibrium, price and quantity will both be higher. However, as the law of demand claims, the demand curves still have negative slopes (as the price of housing rises we move up along D_2 – quantity demanded along this curve is lower than it would have been if price had not risen). See Figure 15.



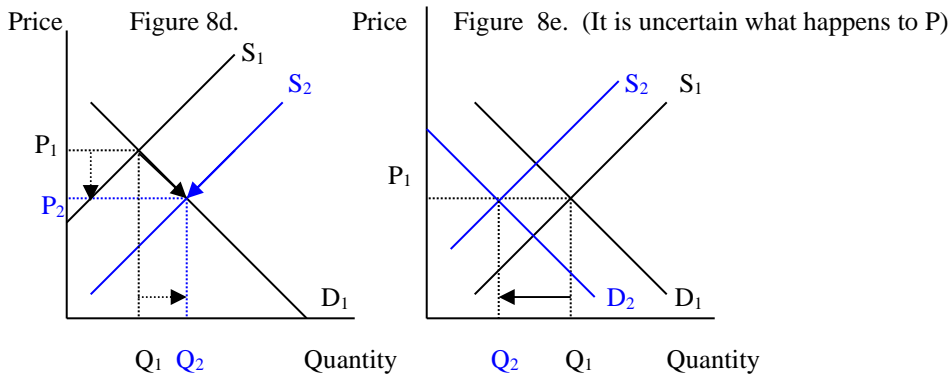
Cause-and-effect runs from higher price leads to increase in quantity supplied.





8a story: this event decreases supply (leftward shift). At what used to be the equilibrium price (P_1) we now observe a shortage ($Q^d > Q^s$). Competition among buyers will drive up price. The higher price increases quantity supplied (movement up ALONG S_2) and a decrease in quantity demanded (movement up ALONG D_1) until price is at the new equilibrium level.

8b story: this event decreases demand (leftward shift). At what used to be the equilibrium price (P_1) we now observe a surplus ($Q^s > Q^d$). Competition among sellers will drive down price. The lower price increases quantity demanded (movement up ALONG D_2) and a decreases in quantity supplied (movement down ALONG S_1) until price is at the new equilibrium level.



8d story: this event increases supply (rightward shift). At what used to be the equilibrium price (P_1) we now observe a surplus ($Q^s > Q^d$). Competition among sellers will drive down price. The lower price increases quantity demanded (movement up ALONG D_1) and a decreases in quantity supplied (movement down ALONG S_2) until price is at the new equilibrium level.

