UNIT 8

ANSWERS TO EXERCISES

coreecon

EXERCISE 8.1 SELLING STRATEGIES AND RESERVATION PRICES

Consider three possible methods to sell a car that you own:

- Advertise it in the local newspaper.
- Take it to a car auction.
- Offer it to a second-hand car dealer.

1. Would your reservation price be the same in each case? Why?
2. If you used the first method, would you advertise it at your reservation price?
3. Which method do you think would result in the highest sale price?
4. Which method would you choose?

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Answer

1. The seller's reservation price is the minimum price he or she is willing to accept. One would expect that the absolute minimum would not change with the method used to sell it. Because each method may require a different amount of effort on the part of the seller, the reservation prices may be different for each channel. For example, offering the car to a second hand-car dealer requires minimal effort, so the seller may be willing to settle for a lower price. Advertising it in a local newspaper requires more effort on the part of the seller, who might then have a higher reservation price due to compensation for their time. In addition, the likelihood of sale may affect the price that one is willing to accept.

2. It is likely that most sellers will advertise a higher price in the hope that buyers will value the car higher than the seller's reservation price.

3. It is likely that an auction may receive the highest price**,** because it creates competition between the buyers, who may try to outbid each other by raising the purchase price.

4. Students will choose different options**,** but it is often the case that second-hand dealers would be the most skilled at negotiating the price downward, so would be the least profitable from the seller's point of view. There is a considerable cost involved in taking a car to auction and this may put off many people even if the eventual expected price may be higher. It is likely that most students will opt for newspaper adverts.

EXERCISE ANSWERS UNIT 8

EXERCISE 8.2 PRICE-TAKERS

Think about some of the goods you buy: perhaps different kinds of food, clothes, transport tickets, or electronic goods.

1. Are there many sellers of these goods?
2. Do you try to find the lowest price in each case?
3. If not, why not?
4. For which goods would price be your main criterion?
5. Use your answers to help you decide whether the sellers of these goods are price-takers. Are there goods for which you, as a buyer, are not a price-taker?

Answer

Example: Everyday clothes

1. Most goods have many sellers.

2. (and 3.) The answer here will depend on the student's buying behaviour and the specific good. However, many students will consider whether the particular good is available at a cheaper price elsewhere, for example on the Internet or a nearby shop. Clothes can depend very much on personal taste and unless the item is standardized (brand name sports shoes, for example), there may be few alternatives available.

3. The answer is suggested above. Goods that are more standardized or homogenous may be available at different prices in different retailers. Similarly, goods that are close substitutes (sports shoes by two leading brands) may be competing on price.

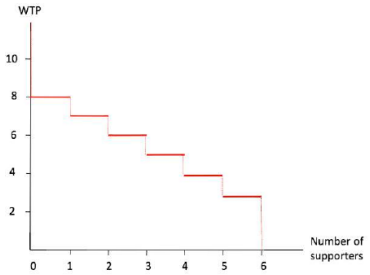
4. Goods for which customers are likely to seek cheaper alternatives, particularly relatively homogeneous goods (like plain white t-shirts), are more likely to be associated with price-taking behaviour. More specialist goods, such as branded or custom-made clothing, are likely to be associated with price-making behaviour.

5. There are some goods where the consumer is not a price-taker. These are usually goods where the consumer can negotiate directly with the seller or where the consumer can impact the price of a good through an auction. For example, when buying a car through an auction (like in the previous exercise), the consumer can directly influence the price with his/her bidding.

EXERCISE ANSWERS UNIT 8

EXERCISE 8.3 MAXIMIZING THE SURPLUS

Consider a market for the tickets to a football match. Six supporters of the Blue team would like to buy tickets; their valuations of a ticket (their WTP) are 8, 7, 6, 5, 4, and 3. The diagram below shows the demand 'curve'. Six supporters of the Red team already have tickets, for which their reservation prices (WTA) are 2, 3, 4, 5, 6, and 7.

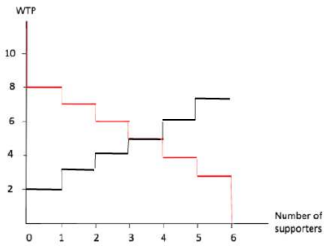


1. Draw the supply and demand 'curves' on a single diagram (Hint: the supply curve is also a step function, like the demand curve).
2. Show that four trades take place in equilibrium.
3. What is the equilibrium price?
4. Calculate the consumer (buyer) surplus by adding up the surpluses of the four buyers who trade.
5. Similarly calculate the producer (or seller) surplus.
6. Hence, find the total surplus in equilibrium.
7. Suppose that the market operates through bargaining between individual buyers and sellers. Find a way of matching the buyers and sellers so that more than four trades occur. (Hint: suppose the highest WTP buyer buys from the highest WTA seller.)
8. In this case, work out the surplus from each trade.
9. How does the total surplus in this case compare with the equilibrium surplus?
10. Starting from the allocation of tickets you obtained through bargaining, in which at least five tickets are owned by Blue supporters, is there a way through further trade to make one of the supporters better off without making anyone worse off?

EXERCISE ANSWERS UNIT 8

Answer

1.



2. Since there are four individuals with valuations of five and above, four trades will take place.
3.
4. Equilibrium price = £5 (where demand and supply curves intersect).
5. Consumer Surplus = £0 + £1 + £2 + £3 = £6.
6. Producer Surplus = £0 + £1 + £2 + £3 = £6.
6. Total Surplus = £6 + £6 = £12.
7.

Seller WTA (Red)	Buyer WTP (Blue)
2	3
3	4
4	5
5	6
6	7
7	8

   Now six trades take place.

8. Each of the trades above gives a surplus of £1 (which will be split between the buyer and seller depending on their bargaining skills), so there will be a total surplus of £6.
9. There is now less total surplus in the economy (£6 compared to £12).
10. In the situation given above, with all six of the Blue team with tickets, there is no way to make one person better off without making another worse off. For example, switching the first and second buyers would increase the surplus from the first transaction, but decrease the surplus from the second transaction.

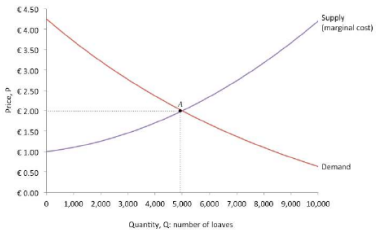
EXERCISE ANSWERS UNIT 8

EXERCISE 8.4 SURPLUS AND DEADWEIGHT LOSS

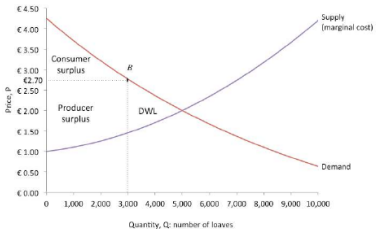
1. Sketch a diagram to illustrate the competitive market for bread, showing the equilibrium where 5,000 loaves are sold at a price of €2.00.
2. Suppose that the bakeries get together to form a cartel. They agree to raise the price to €2.70, and jointly cut production to supply the number of loaves that consumers demand at that price. Shade the areas on your diagram to show the consumer surplus, producer surplus, and deadweight loss caused by the cartel.
3. For what kinds of goods would you expect the supply curve to be highly elastic?
4. Draw diagrams to illustrate how the share of the gains from trade obtained by producers depends on the elasticity of the supply curve.

Answer

1.



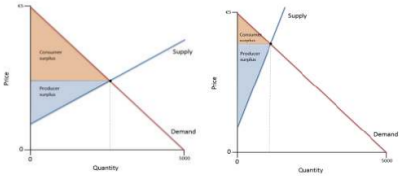
2. At €2.70, the bakeries sell 3,000 loaves in total (point B).



EXERCISE ANSWERS UNIT 8

3. Goods with a highly elastic supply curve are likely to have a number of characteristics. These are:
   - Supplier has the spare capacity to increase output
   - Short time frame needed to get products to market
   - Factors of production can be reallocated easily

4.



We can observe the impact of the elasticity of supply by comparing two supply and demand graphs. In the market on the right, supply is less elastic than on the left. As a result, more of the gains from trade go to the producer compared to the case on the left.

EXERCISE 8.5 THE MARKET FOR QUINOA

Consider again the market for quinoa. The changes shown in Figures 8.10a–c can be analysed as shifts in demand and supply.

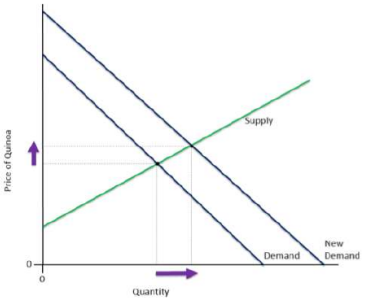
1. Suppose there was an unexpected increase in demand for quinoa in the early 2000s (a shift in the demand curve). What would you expect to happen to the price and quantity initially?
2. Assuming that demand continued to rise over the next few years, how do you think farmers responded?
3. Why did the price stay constant until 2007?
4. How could you account for the rapid price rise in 2008 and 2009?
5. Would you expect the price to fall eventually to its original level?

Answer

Initially because of the rightward shift of the demand curve, price and quantity supplied would both rise.

- Reyes, Jose Daniel, and Julia Oliver. 2013. 'Quinoa: The Little Cereal That Could', *The Trade Post*. 22 November ((tinyco.re/9266629)

EXERCISE ANSWERS UNIT 8



1. With a sustained increase in demand, farmers would begin to supply more quinoa to the market by using any spare capacity in the production of quinoa. In the short term, this is represented by a movement along the supply curve, leading to an increase in price (as shown in the figure above). In addition, over time farmers may shift into quinoa production from other crops and new farmers may enter the market, which would shift the entire supply curve down, putting downward pressure on the price.

2. There was likely excess capacity in the market. Therefore, farmers who had spare land to grow crops grew Quinoa, or farmers switched from growing another crop to Quinoa. Increases in the number of quinoa farms would shift the supply curve downwards, which put a downward pressure on price that offset any increases in price coming from demand increases. The constancy of the price suggests that supply increased roughly in line with demand.

3. The price may rise rapidly if the market reaches peak capacity, so that supply no longer increases (a shift in the supply curve) to meet the increase in demand. For example, once farmland and other production inputs are being used to their full capacity, suppliers cannot adjust production further in the short run. In the long run, new farmers can enter the market, but there are likely to be some costs of entry that prevent farms from being available immediately for quinoa production. Therefore, in the short run, the price will rise rapidly to curtail demand.

4. If cost conditions have not changed, then one might expect that the price would decrease due to an increase in supply (a rightward/downward shift of the supply curve), as other farmers will see the opportunity for economic rents and so will enter the market for quinoa until economic rents are all competed away. However, costs may rise, for example, land that is not well suited for quinoa may begin to be used for its production, which would increase unit costs and affect the amount by which supply can be increased. Whether prices fall back to their original levels or not depends on whether the long-run increase in supply can meet the long-run increase in demand.

EXERCISE ANSWERS UNIT 8

EXERCISE 8.6 PRICES, SHOCKS, AND REVOLUTIONS

Historians usually attribute the wave of revolutions in Europe in 1848 to long-term socioeconomic factors and a surge of radical ideas. But a poor wheat harvest in 1845 lead to food shortages and sharp price rises, which may have contributed to these sudden changes.

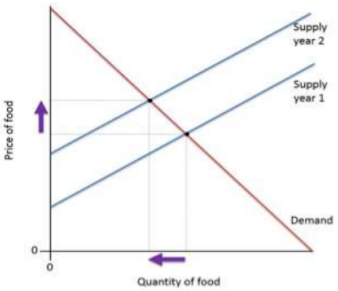
The table shows the average and peak prices of wheat from 1838 to 1845, relative to silver. There are three groups of countries: those where violent revolutions took place, those where constitutional change took place without widespread violence, and those where no revolution occurred.

1. Explain, using supply and demand curves, how a poor wheat harvest could lead to price rises and food shortages.
2. Find a way to present the data to show that the size of the price shock, rather than the price level, is associated with the likelihood of revolution.
3. Do you think this is a plausible explanation for the revolutions that occurred?
4. A journalist (http://tinyco.re/8936018) suggests that similar factors played a part in the Arab Spring in 2010. Read the post. What do you think of this hypothesis?

- Berger, Helge, and Mark Spoerer. 2001. 'Economic Crises and the European Revolutions of 1848.' *The Journal of Economic History* 61 (2): pp. 293–326.

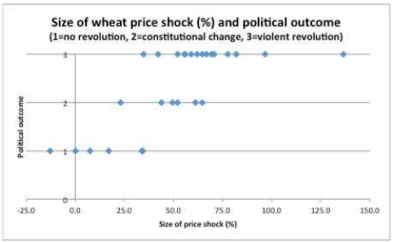
Answer

1.



We see that a restriction in supply, such as a poor harvest, shifts the supply curve upwards (the amount supplied is less at every price). This leads to a higher price and a lower quantity in equilibrium.

2.



There appears to be a positive relationship between the size of the wheat price shock and the political outcome. Countries that had violent revolutions had larger wheat price shocks on average (in percentage terms) compared to countries that had no revolution.

3. Given the relationship shown by the data, as well as the link between economic shocks and social unrest, it seems likely that the shocks to food prices may have been a contributing factor to the revolutions of 1848. However, we cannot conclude that the wheat price shocks caused the revolutions because the reverse may be true—the political instability during the revolution could have caused the price shock for example, by contributing to the disruption of the production of grain. It is also likely that a price shock was not the sole reason for the revolutions and that there are numerous other contextual factors, such as the price of other goods, that could have contributed to the revolution.

4. Given the rise in food prices, it seems logical to argue that the same conditions that contributed to the 1848 revolution may have played a part in the revolutions of 2010. However, like in 1848, we should see food prices as a contributing factor rather than the sole cause. This is because there were many other political and other contextual factors besides food prices that may have led to the revolutions.

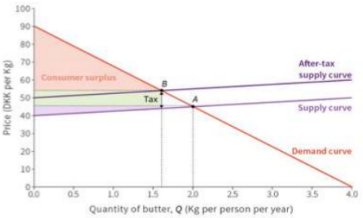
   Furthermore, when making statements such as these, we must always consider the difference between correlation and causality: just because two things are correlated, it does not mean that one is causing the other. There may be factors that contribute to both rising food prices and the revolution (for example, corrupt governance), so more analysis would be required to determine the exact relationship between these two variables.

EXERCISE 8.7 THE DEADWEIGHT LOSS OF THE BUTTER TAX

Food taxes such as the ones discussed here and in Unit 7 are often intended to shift consumption towards a healthier diet, but give rise to deadweight loss.

Why do you think a policymaker and a consumer might interpret this deadweight loss differently?

Answer



The figure shows the effect of the introduction of a per-unit tax of butter, which had the effect of raising the price per unit. This has led to a deadweight loss.

We can observe from the graph that the majority of the tax incidence has fallen on the consumer. This is due to the fact that supply is relatively more price elastic than demand. The consumer may view this tax negatively, as they are now paying a higher price for the good and consuming less. Therefore, they have lost some of the gains that they had made from trade (consumer surplus). While the consumer may enjoy consuming the good in the short term, the long-term health consequences of the good may be severe.

It is likely than when they introduced the tax, the Danish government were looking to maximise the long-term health benefits of the consumer rather than the short-term gains from trade. Therefore, policymakers will be very happy that the burden of the tax appears to have fallen on the consumer. This is because it may lead to a large decrease in the quantity consumed.

You may remember that we considered the case for a tax on sugar in Unit 7. One of the potential arguments against the tax was that it would have an extremely negative effect on poorer people as they consumed the greatest amount of unhealthy food. The evidence here suggests that a large decrease in consumption has occurred at the expense of only a relatively small increase in price. This suggests that the impact of the tax on the poor is offset by the benefits to their long-term health, achieved by consuming less butter.

EXERCISE 8.8 PRICE-FIXING

We have used chocolate bars as a hypothetical example of an approximately competitive market. But in recent years, producers of best-selling chocolate bars worldwide have been accused of colluding with each other to keep prices high. Use the information in this article to explain:

1. In what ways does the market for chocolate bars fail to satisfy the conditions for perfect competition?
2. Each brand of chocolate bar faces competition from many other similar brands. Why, despite this, do some producers have considerable market power?
3. In what market conditions do you think price-fixing is most likely to occur, and why?

Answer

1. Use the definition of perfect competition:
    a) homogeneous product
    b) large numbers of potential buyers and sellers
    c) who act independently
    d) buyers and sellers can readily know the prices at which goods are exchanged.
5. The focus in the answer is on (a), (b) and (c). Markets are not perfectly competitive when products are differentiated. In the case of chocolate bars, each company uses a slightly different recipe for making chocolate, including non-cocoa ingredients such as nuts or raisins and different shapes (such as 'mountain shaped' for Toblerone) to differentiate their chocolate from another company's. Companies also use marketing (including product packaging) to differentiate their products. This allows firms to acquire market power. Collusion to agree on prices is an additional deviation from the assumptions of perfect competition.

2. As mentioned in Q1, despite the chocolates tasting similar, companies use marketing to build a distinct brand identity, so that consumers still consider the brands as sufficiently different from each other. Building brand loyalty is one way to gain market power, because consumers will be less responsive to price changes and less likely to switch to similar brands if the price of their favourite brand increases.
3. Conditions that make price fixing easier include:
    - Companies can easily coordinate amongst themselves, for example, by meeting at trade shows and association events (as mentioned in the article), or by locating close to each other.
    - The costs of inputs, manufacturing, and distribution change in similar ways across companies, so that they can use cost changes as an excuse to change the price in a similar manner to their competitors. Such collusion would be difficult to detect and prove in court (as mentioned in the article).
    - Demand is not very price elastic—if a small price increase leads to a large fall in demand, firms may not find it beneficial to increase the price, even through collusion.

EXERCISE 8.9 PRICE DISPERSION

Choose any published textbook that you have been using in your course. Go on to the web and find the price you can buy this book for from a number of different suppliers (Amazon, eBay, your local bookstore, and so on).

Is there dispersion in prices, and if so, how can you explain it?

Answer

Example: *Mathematics for Economists: An Introductory Textbook* by Nicholas Rau & Malcolm Pemberton. The table below shows the prices at a number of online outlets (Prices checked on 10 March 2016):