UNIT 11

coreecon

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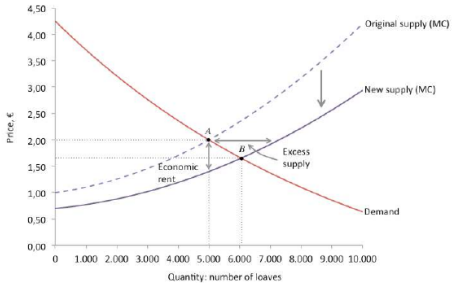
EXERCISE 11.1 AN INCREASE IN THE PRICE OF BREAD (FALL IN MC)

Figure Exercise 11.1. An increase in the supply of bread (fall in MC).



Consider a market in which bakeries supply bread to the restaurant trade. A new technology becomes available to the bakeries, shifting the supply curve as shown in the figure.

1. Explain why the bakeries would want to increase sales. Why can they not do so at the original price?
2. Describe how the actions of bakeries could adjust the industry to a new equilibrium.
3. Is it always the seller who benefits from the economic rents that arise when the market is in disequilibrium?
4. What action might restaurants take while the market is not in equilibrium?

Answer

1. The movement of the supply curve implies there is an excess supply at the current equilibrium price. Hence, suppliers are willing to sell more than indicated by the current equilibrium A at this price. However, there are not enough willing buyers to purchase the quantity that suppliers wish to supply. Buyers will attempt to seek rents by offering lower prices than the prevailing price. Suppliers will be competing for these buyers and will begin to reduce prices to retain or gain sales.

2. Bakers will start to reduce prices and this downward pressure on the price will cease once there is no possibility of gaining rents by offering different prices. This will happen once the price falls to the new equilibrium at B where the excess supply has disappeared.

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3. No, in this case the demanders benefit as they can seek to pay less than they might otherwise be willing to pay for the bread because of the existence of an excess supply. In general, the distribution of rents in disequilibrium will depend on the distribution of relative bargaining power between buyer and sellers.

4. The restaurant might offer a lower price for a loaf of bread to the bakery. Given there is excess supply and the bakery can increase revenues by selling extra loaves, the price will decrease. The price will keep adjusting until the new equilibrium at B is reached.

EXERCISE 11.2 COTTON PRICES AND THE AMERICAN CIVIL WAR

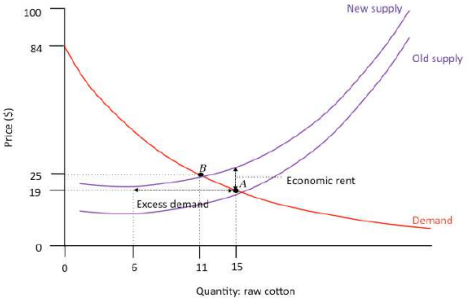
Read again the introduction to Unit 8 and the box about Hayek. Use the supply-and-demand model to represent:

1. The increase in the price of US raw cotton (show the market for US raw cotton, a market with many producers and buyers).
2. The increase in the price of Indian cotton (show the market for Indian raw cotton, a market with many producers and buyers).
3. The reduction in textile output in an English textile mill (show a single firm in a competitive product market).

In each case, indicate which curve(s) shift and explain the result.

Answer

1. The diagram below shows the shift in the supply curve consequent on the the blockade of the Confederate states ports. The immediate situation is an excess demand and rent seeking behavior eventually results in a new equilibrium at B which has involved a movement *along* the demand curve.



2. Mill owners started to look for other sources of cotton, which increased demand in India. The diagram below shows this shift in the demand curve facing Indian producers. The immediate situation is an excess demand which results in cotton producers raising their prices in order to capture short-term economic rents. The result is a movement *along* the supply schedule to the new equilibrium at B.

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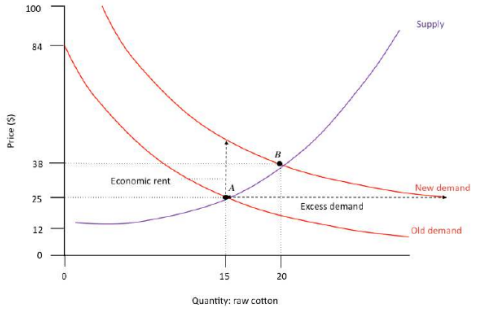
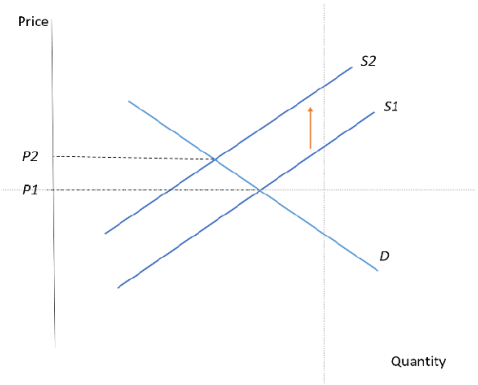


3. The marginal cost for firms increased due to the increased cost of raw material (cotton). Since the market supply is the horizontal sum of all individual firm supply curve (which in turn are their marginal cost curves), the market supply curve shifts up. The price therefore rises in the market from P1 to P2.



The diagram below shows a competitive firm in the industry. The initial equilibrium is at *A*. Since marginal costs for the firm have risen rise the marginal cost curve (i.e. firm supply curve) shifts upwards and the new equilibrium will be at *B* where the new marginal cost curve crosses the new price line (which indicates the firm's marginal revenue). Each firm is now producing less output at a higher market price.

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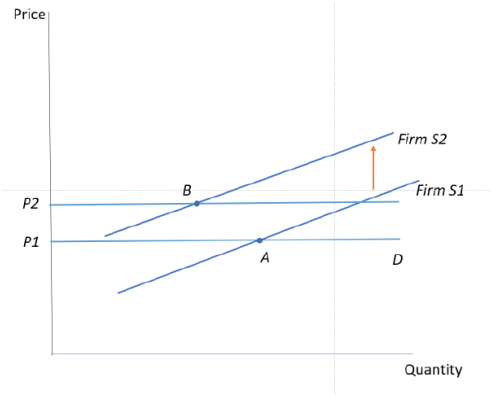

Exercise 11.3 THE WORLD MARKET FOR OIL

Using the supply and demand diagram:

1. Illustrate what happens when economic growth boosts world demand (i) in the short run, (ii) in the long run as producers invest in new oil wells, (iii) in the long run as consumers find substitutes for oil.
2. Similarly, describe the short and long-run consequences of a negative supply shock similar to the 1970s shock.
3. If you observed an oil price rise, how in principle could you tell whether it was driven by supply-side or demand-side developments? How would the diagram, and the response to shocks, be different if there were:
4. A competitive market composed of many producers?
5. A single monopoly oil producer?
6. An OPEC cartel controlling 100% of world oil production and seeking to maximize the combined profits of its members?
7. Why would individual OPEC member countries have an incentive to produce
more than the quota assigned to them?
8. Does this logic carry over to the situation in the real world where there are also non-OPEC producers?

Answer

1. Using diagram 11.9, an increase in world demand for oil would result in a shift outwards the demand curve as shown. In the long run the supply curve for oil will shift outwards which will reduce prices. Finally, if consumers find substitutes for oil the demand curve will shift inwards. The resulting price may be above, below or the same as the original price.

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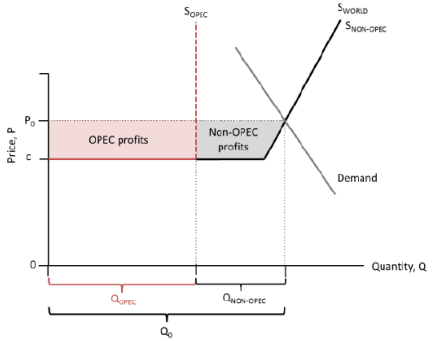

2. Similarly a supply shock will shift the supply curve to the left which will raise prices in the short run. In the longer run, the higher prices may incentivize producers to find new types of oil such as from tar sands or shale. This could shift the supply curve back to the right.

3. An increase in demand (a shift outwards of the demand curve) or a restriction in supply (a leftward movement of the supply curve) will both raise the price, *ceteris paribus.* However, in the first case, the total amount of oil transacted in the market will increase whereas in the second case the total amount of oil transacted will fall. This fact can be used to identify which curve has shifted.

4. In the case of a competitive industry the first part of the supply curve, which represents the power that OPEC have in controlling supply, would not exist. The restriction of supply that OPEC imposes would not apply and there would be a larger supply of oil. The supply curve would be positively sloped throughout and further to the right. Prices would therefore be lower.

5. In the case of a monopoly producer of oil, there would not be an industry supply curve. We would be looking at a single firm facing a demand curve and the firm would, as in Unit 7, try to find the point of production on the isoprofit curve at which the profits were maximized subject to the demand constraint. An increase in demand in this situation would allow the firm to increase its output and raise its prices but the increase in quantity would not be as great as in the case of a competitive industry because a monopoly has the power to restrict supply in order to benefit from an increase in prices.

6. If a cartel controls 100% of world output and profit maximizes on behalf of its members, it is in fact acting as a monopoly firm. It would set its output at the same level as a monopoly. The price would be higher than in a competitive industry and the total quantity supplied would be lower.

7. Within such a cartel, each producer would have an incentive to produce more because the price set by the cartel would be above the marginal costs of production. This means that any producer can potentially produce more output and charge a lower price and increase its profits because the price it could sell the additional output would still be above the cost of that extra production.

8. In a world, as depicted by the diagram in (1) above, where there are also non-OPEC producers, the world price may still be some way above cost levels. Though the price is not as high as would be the case if there were only the OPEC

producers, nevertheless the incentive to produce beyond one's quota still exists because there are profits to be had by increasing output.

Exercise 11.4 THE SHALE OIL REVOLUTION

An important development in the past 10 years has been the re-emergence of the US as a major oil producer via the "shale oil revolution". Shale oil is extracted using the technology of hydraulic fracturing or "fracking": injecting fluid into ground at high pressure to fracture the rock and allow extraction. In a speech on "The New Economics of Oil" in October 2015, Spencer Dale, Group Chief Economist at oil producer BP plc, explained how shale oil production differs from traditional extraction.

1. According to Dale, how has the shale oil revolution affected the world market for oil?
2. How will the world oil market be different in future?
3. Explain how our supply and demand diagram should be changed if his analysis is correct.

Answer

1. Dale suggests that shale oil production is far more responsive to price changes (more elastic) than conventional oil so that price volatility is mitigated.

2. He also suggests that the geographical nature of oil markets has changed – the US is largely self-sufficient but the eastern markets are increasingly net importers of oil. He also suggests that OPEC is concerned with protecting its market share, particularly in response to persistent shocks, and is unlikely to try to use its power to stabilize prices at a high level.

3. In terms of our supply and demand diagram, the supply schedule is likely to be less inelastic to reflect the changing conditions of oil production.

Exercise 11.5 SUPPLY AND DEMAND CURVES

1. Use the data from the NWS order book in Figure 11.13 to plot supply and demand curves for shares.
2. Explain why the two curves do not intersect.

- Spencer Dale. The New Economics of Oil. https://tinyco.re/4892492. October 2015

Answer

1.

Data	A continuous double auction order book: Bid and ask prices for News Corp (NWS) shares
Source	Figure 11.14 in The Core Project. Ebook. Unit 9: Market disequilibrium, rent-seeking and price-setting, p. 32
Publish/download date	8 May 2014
Horizontal axis variable	Number of shares

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2. This is data from the order book i.e. quantity of shares at ask and bid prices which have not yet cleared. All prices where the bid price equals the ask price have cleared and the transaction has proceeded, and thus are not logged in the order book. Therefore we can only plot the data for those prices where trades do not occur.

Exercise 11.6 MARKETS FOR GEMS

A *New York Times* article (tinyco.re/6343875) describes how the worldwide markets for opals, sapphires, and emeralds are affected by discoveries of new sources of gems.

1. Explain, using supply and demand analysis, why Australian dealers were unhappy about the discovery of opals in Ethiopia.
2. What determines the willingness to pay for gems? Why do Madagascan sapphires command lower prices than Asian ones?
3. Explain why the reputation of gems from particular sources might matter to a consumer.
Shouldn't you judge how much you are willing to pay for a stone by how much you like it yourself?
4. Do you think that the high reputation of gems from particular origins necessarily reflects true differences in quality?
5. Could we see bubbles in the markets for gems?

- Victoria Gomelsky. "On the Origins of Gems". tinyco.re/6343875. The New York Times. March 16, 2014.

Answer

1. The Australians were unhappy because they were losing their monopoly power on the supply of white opals. In other words, the discovery in Ethiopia was a supply shock, which decreased the equilibrium price of opals (*ceteris paribus*).

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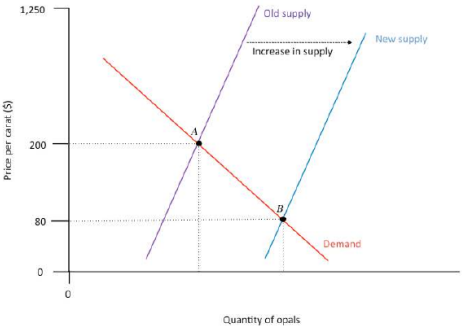

2. The classic 4 Cs (colour, clarity, cut, and carat weight), but also the origin of the gem. Madagascan sapphires are sold for lower prices because they do not come from historically "established sources" with a good reputation.

3. Firstly, reputation may hide unobserved qualities acquired through long-term experience in the industry. Secondly, consumers may relate the colour of the gems with the origin (e.g. Kashmir sapphires). Thirdly, consumers may relate the stones to the area from history books. Fourthly, some stones may have gained historical significance and are now used as a reference for comparison of all other stones.

Some characteristics of the stone are only understood and "visible" to an expert. Hence, if you abide by this rule, you risk purchasing an objectively "lower quality" stone.

4. The tone of the article suggests that it does not. The true quality probably lies in the 4 Cs.

5. Yes, if people believed that price of a (type of) stone will rise, they would increase demand for the (type of) stone. By their nature, these stones hold value and can relatively easily be resold. Others will see the rise in price and may wish to purchase the stones for their increasing resale value. This in turn will increase the price further, and so on.

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Exercise 11.7 WHAT IS THE FUNDAMENTAL VALUE OF A BITCOIN?

A bubble may have occurred in the market for the virtual currency called Bitcoin. Bitcoin was introduced by a group of software developers in 2009. Where it is accepted, it can be transferred from one person to another as payment for goods and services.

Unlike other currencies it is not controlled by a single entity such as a central bank, but instead is "mined" by individuals who are willing to lend their computing power to verify and record Bitcoin transactions in the public ledger. At the start of 2013, a Bitcoin could be purchased for about $13. At its peak on 4 December 2013 the same coin was trading at $1,147. It then lost more than half its value in two weeks. These and subsequent price swings are shown in Figure 11.20.

- Coindesk.com. 2015. Bitcoin News, Prices, Charts, Guides & Analysis (tinyco.re/8792662) and Bitcoincharts (tinyco.re/4434190). Both accessed August 2016.

Figure 11.21 The value of Bitcoin (2013-2015).

Use the models in this section, and the arguments for and against the existence of bubbles, to provide an account of the data in Figure 11.20

Answer

In the few months following September 2013, there was a lot of optimism about Bitcoin as the new currency. At the same time, there was little information on what Bitcoin actually is, how it works, and what it can be used for. Taken all together, there was optimism in the markets, which increased demand and hence increased prices, creating expectations about future price increases, further increasing demand and prices and so on. This is what we see in the second half of 2013 in Figure 9.20 (now Figure 11.21) and is illustrated in Figure 1 below. Note that supply is relatively inelastic, because mining new Bitcoins takes a long time.

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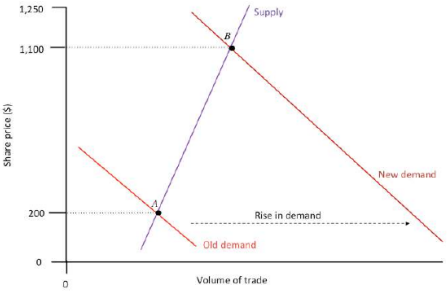
Figure 1



Since then, more information became available and many investors realized the limitations of Bitcoin as a new currency and its use for funding illegal activities. We see the price declining and stabilising at around $200/share. Demand thus decreased and investors sold their shares (supply increased), dampening the price. This is illustrated in Figure 2 below.

Figure 2