Chapter 9: The Price Puzzle: What Drives the Market

Questions — Questions and activities

Q1 An increase in income always leads to a rise in demand for goods. Defend or refute, giving reasons for the same.

SOLUTION

This statement is a partial truth and needs to be refuted in its absolute form. While it is generally true that a rise in income increases purchasing power and allows consumers to buy more or choose higher-quality products, income does not always lead to a rise in demand for every good.

For most goods — called normal goods — demand rises with income. For example, when household income increases, people tend to buy more branded clothing or better-quality food.

However, for some goods — called inferior goods — demand actually falls as income rises, because consumers switch to better alternatives. For example, when income rises, a family that previously ate coarse millet may shift to rice or wheat, reducing demand for millet.

Additionally, even for normal goods, the increase in demand depends on other factors such as tastes, preferences, and future price expectations. Srivalli's fondness for mangoes may keep her demand for mangoes high regardless of a price change, but a change in taste could offset the income effect.

Answer: Refuted. While higher income generally raises demand for normal goods, demand for inferior goods falls as people switch to better alternatives. Income is one determinant of demand, but taste, preferences, and expectations also matter, so an income rise does not always raise demand for all goods.

Q2 If petrol prices double, what happens to
a. Demand for diesel cars
b. Demand for electric cars
c. Demand for car accessories
d. Demand for public transport

SOLUTION

a. Demand for diesel cars: Petrol and diesel are substitute fuels for vehicle users. If petrol prices double, many petrol-car owners or potential buyers may switch to diesel cars, which become relatively cheaper to run. Therefore, demand for diesel cars is likely to increase.

b. Demand for electric cars: Electric cars are a substitute for petrol-powered cars since they do not use petrol at all. With petrol prices doubling, the running cost of petrol vehicles rises sharply, making electric cars a more attractive and economical option. Demand for electric cars is likely to increase significantly.

c. Demand for car accessories: Car accessories (for example, seat covers, music systems,

GPS devices) are complementary goods — they are used alongside cars. If petrol prices double, some consumers may drive less or postpone buying new petrol cars, reducing the overall purchase of car accessories. Demand for car accessories may decrease or remain stagnant.

d. Demand for public transport: Public transport (buses, metro, trains) is a substitute for private petrol-run vehicles. When petrol prices double, commuting by personal car becomes expensive, so many people may shift to cheaper public transport options. Demand for public transport is likely to increase.

Answer: a. Diesel cars: demand increases (substitute fuel). b. Electric cars: demand increases significantly (clean substitute). c. Car accessories: demand may decrease (complement to cars used less). d. Public transport: demand increases (substitute for costly petrol vehicles).

Q3 A farmer traditionally irrigates fields manually (labour-intensive). He installs drip irrigation (a technology upgrade) that reduces water use by 40 per cent and increases yield by 30 per cent. How does this affect

a. His cost of production

b. His willingness to supply at different prices

c. The overall market supply if many farmers adopt this technology

SOLUTION

a. His cost of production: Drip irrigation reduces water use by 40 per cent, which lowers the cost of water and the labour required for manual irrigation. Lower input costs mean the farmer's cost of producing each unit of crop falls. As the chapter states, improvement in technology reduces the cost of production, allowing producers to produce more.

b. His willingness to supply at different prices: Because his cost of production falls, the farmer can now earn a profit even at lower prices than before. This means he is willing to supply the same quantity at a lower price, or a greater quantity at the same price. His individual supply curve shifts outward — he becomes more willing and able to supply at every price level. The 30 per cent increase in yield also means he has more produce to offer.

c. The overall market supply if many farmers adopt this technology: Market supply is the sum of all individual supplies. If many farmers adopt drip irrigation, each of them produces more at lower cost. The total quantity supplied at every price increases, causing the market supply curve to shift rightward (increase). This greater supply, if demand remains the same, would push market prices down and make the product more accessible to consumers.

Answer: a. Cost of production falls due to lower water and labour expenses. b. The farmer is willing to supply more at every price level; his supply increases. c. If many farmers adopt it, market supply rises substantially, shifting the market supply curve rightward and likely lowering equilibrium price.

Q4 During online festival sales, the prices of many products are very low. Use the concept of demand and supply to explain why the sellers sell at such a low price. What happens to the equilibrium when the price is lowered? Does this benefit only consumers or sellers as well? Explain.

SOLUTION

During online festival sales, sellers deliberately lower prices to attract a large volume of buyers. This strategy is grounded in the Law of Demand — as price falls, quantity demanded rises. Sellers anticipate that the surge in demand during festivals (driven by future price expectations: consumers wait for discounts) will allow them to sell a much higher volume of goods.

When the price is lowered below the market equilibrium, quantity demanded exceeds quantity supplied, creating excess demand (shortage). However, online sellers plan for this by stocking large inventories in advance, effectively increasing supply to meet the expected surge. They aim to clear stocks rapidly, moving toward a new equilibrium at the lower price.

Sellers benefit too. Although the price per unit is lower, the significantly higher volume of sales can increase total revenue. Additionally, clearing old stock reduces holding/storage costs, attracts new customers, builds brand loyalty, and generates positive reviews — all of which boost long-term business. Consumers benefit from lower prices and access to products they may not have bought at regular prices.

Answer: Sellers lower prices during festival sales to exploit high seasonal demand (Law of Demand — lower prices raise quantity demanded). At the lower price, excess demand emerges, but pre-stocked supply clears it. Both consumers gain (lower prices) and sellers gain (higher total revenue through large volumes, cleared stock, and new customer acquisition).

Q5 Suppose the government sets a maximum sale price for an essential vaccine below the market-driven price. What is likely to happen? Choose from the options below and elucidate your point.

a. Surplus
b. Shortage
c. No effect
d. Fall in demand

SOLUTION

The correct answer is (b) Shortage.

When the government sets a price ceiling (maximum price) below the market equilibrium price, two things happen simultaneously: demand increases because the vaccine is now cheaper and more people can afford it, and supply decreases because producers earn less profit and may reduce production or exit the market.

This is exactly what the chapter explains about price ceilings: the government sets maximum prices for essential goods like medicines to prevent overcharging, but this can also lead to producers losing motivation to supply goods if prices are fixed below market levels, potentially

leading to reduced production and shortages.

With quantity demanded exceeding quantity supplied at the capped price, the market faces a shortage. For example, during COVID-19, when the government capped sanitiser prices at 100 for 200 ml bottles, demand surged. More companies had to enter production to meet demand, and supply gradually caught up. This shows that a price ceiling below equilibrium creates a shortage in the short run.

Answer: Answer: (b) Shortage. A price ceiling below the market price increases quantity demanded (more people can afford the vaccine) while reducing quantity supplied (lower profit discourages producers). The result is excess demand — a shortage of the vaccine in the market.

Q6 The government levies higher taxes on products such as tobacco and alcohol to promote healthier choices among citizens. Can you find out other goods where price controls have been set in place? What are the reasons for the same?

SOLUTION

The government uses taxes and price controls on several goods to promote welfare, fairness, and public health. Some key examples are:

1. Medicines and essential drugs: The government sets maximum retail prices (MRP) for essential medicines under the Drug Price Control Order. The reason is to ensure that life-saving drugs remain affordable for all citizens, especially low-income groups.

2. Petroleum products: The government regulates the prices of LPG cooking gas cylinders and kerosene, providing subsidies to keep them affordable for poor households. The reason is to ensure energy access for all and reduce economic hardship.

3. Food grains under the Public Distribution System (PDS): Rice and wheat are supplied at subsidised prices through ration shops (fair price shops). The reason is food security — ensuring that no citizen goes hungry due to high market prices.

4. Minimum Support Price (MSP) for farmers: The government sets a price floor (minimum price) for agricultural produce like wheat, rice, and pulses. The reason is to protect farmers from distress selling at very low prices during bumper harvests.

5. Bus and metro fares: Transport fares in government-run buses and metros are regulated below free-market levels to ensure affordable public mobility, especially for daily-wage workers and students.

Answer: Other goods with government price controls include essential medicines (MRP caps), LPG/kerosene (subsidised rates), food grains via PDS (subsidised prices for the poor), MSP for farm produce (price floor to protect farmers), and public transport fares. The common reasons are: ensuring affordability of essentials, protecting vulnerable groups, preventing exploitation, and promoting public welfare.

Q7 Can excessive government regulation hurt markets? Explain with suitable examples.

SOLUTION

Yes, excessive government regulation can hurt markets. The chapter identifies three main limitations of government intervention:

1. Price distortions and reduced producer incentives: When the government fixes prices below market levels, producers earn less than they would in a free market. For instance, if the government sets a maximum price for wheat at 20 per kg while market forces set it at 30 per kg, farmers receive less revenue. This may lead to reduced production and eventually shortages, harming both farmers and consumers in the long run.

2. Compliance burdens: Excessive regulations require businesses to obtain multiple licenses, permits, and approvals, which increases the cost and time of doing business. For example, a small restaurant may need food safety, fire safety, pollution control, and local clearances. The burden of compliance can discourage small entrepreneurs from starting or expanding their businesses, reducing economic activity.

3. Discourages innovation and entrepreneurship: Heavy price controls reduce the incentive to invest in new technology or ideas. If farmers cannot earn adequate returns due to price ceilings, they will not invest in better seeds, drip irrigation, or technology. This reduces long-term productivity, output, and innovation in the economy.

Answer: Yes. Excessive regulation causes: (1) price distortions — capping wheat at 20 vs market 30 discourages farmers, reducing supply; (2) compliance burdens — a small restaurant needing multiple permits may shut down; (3) reduced innovation — farmers under price controls skip investing in better technology, lowering long-term productivity.

Q8 In the table below, different prices of guava are given.
a. Think and write how much guava you will buy at each price.
b. Ask the same question to three of your friends and fill in the table.
c. Also make a graph for each one of you and one final graph for the total quantity.

Price | You | Friend 1 | Friend 2 | Friend 3 | Total
100/kg
80/kg
50/kg
20/kg

SOLUTION

This is a personal activity. Below is a model answer based on the Law of Demand (as price falls, quantity demanded rises).

Model demand schedule (quantities in kg per week — use your own realistic numbers):

Price	You	Friend 1	Friend 2	Friend 3	Total
100/kg	0.5	0.5	1	0	2
80/kg	1	1	1	0.5	3.5
50/kg	1.5	2	2	1	6.5
20/kg	2	3	3	2	10

c. Graphing guidance: Plot Price () on the Y-axis and Quantity (kg) on the X-axis. Draw one downward-sloping demand curve for each person using their individual quantities at each price. Then draw a final market demand curve using the Total column — it will be flatter and further to the right than each individual curve, showing how market demand aggregates individual demands.

Answer: Model answer (activity): Fill in quantities that decrease as price rises, following the Law of Demand. For the graph — Y-axis = Price (), X-axis = Quantity (kg). Each person's curve slopes downward. The total/market demand curve is plotted using the summed quantities and is flatter than any individual curve.

Q9 Visit the nearby vegetable market and try to find answers to the following questions.
a. Who decides the prices of different vegetables in the vegetable market?
b. Sometimes the prices of a few vegetables is too high, and sometimes too low. Why is this?
c. The price of tomatoes is high in the morning and eventually gets lower by the evening. Have you ever noticed this? Comment.

SOLUTION

a. In a typical vegetable market, prices are decided by the interaction of demand and supply — that is, by negotiation between buyers and sellers. Wholesalers (sabzi mandis/APMCs) set bulk prices based on the quantity arriving from farms each day. Individual vendors then set retail prices above their purchase cost. If there are many sellers and the supply is large, prices tend to be lower due to competition; if supply is low or demand is high, sellers charge more.

b. Vegetable prices fluctuate because supply depends on seasonal and weather conditions. A good harvest or peak growing season means abundant supply, pushing prices down. Poor weather, transport disruptions, or pest attacks reduce supply sharply, pushing prices up even if demand stays the same. Demand also shifts — festival seasons, weddings, or the school year increase demand for certain vegetables. This constant interplay of demand and supply causes prices to vary.

c. The chapter mentions that prices in dynamic markets change frequently in response to demand and supply. In the morning, vegetables are fresh and supply is full — vendors keep prices higher because demand is also high (households buying for the day). As the day progresses, unsold stock accumulates. Vendors prefer to sell their perishable stock rather than let it spoil. So by evening, they reduce prices to clear the remaining stock. This is a real-world

example of prices adjusting toward equilibrium: excess supply in the evening drives the price down.

Answer: a. Prices are set by the demand-supply interaction between wholesale market arrivals and retail sellers. b. Vegetable prices rise when seasonal or weather shocks reduce supply, and fall during peak harvest when supply is abundant. c. Morning prices are high (fresh stock, high demand); by evening vendors reduce prices to clear perishable unsold stock — a real-world price adjustment driven by excess supply.

Q10 Categorise the following combination of goods into substitute goods and complementary goods.
a. Movie ticket in the cinema hall and popcorn
b. Eraser and pencil
c. Laptop and computer
d. Air Conditioner and cooler
e. Notebook and pen
f. Apple and banana
g. Mobile and earphones

SOLUTION

a. Movie ticket in the cinema hall and popcorn — Complementary goods. The chapter gives this exact example: if movie tickets become more expensive, demand for popcorn sold in cinema halls also falls, because the two are used together.

b. Eraser and pencil — Complementary goods. A pencil is used along with an eraser; a rise in demand for pencils tends to increase demand for erasers.

c. Laptop and computer — Substitute goods. A laptop and a desktop computer serve the same function (computing). If the price of desktops rises, people may buy laptops instead, and vice versa.

d. Air Conditioner and cooler — Substitute goods. Both cool a room. If air conditioner prices rise sharply, many consumers switch to the cheaper cooler as an alternative.

e. Notebook and pen — Complementary goods. A pen is used together with a notebook; they are jointly demanded for writing.

f. Apple and banana — Substitute goods. Both are fruits that satisfy a similar need. The chapter explicitly notes that if Srivalli cannot afford mangoes, she may buy bananas — substitutes are goods that can replace each other.

g. Mobile and earphones — Complementary goods. The chapter cites smartphones and earphones as an example of complementary goods that are generally used together.

Answer: Complementary: (a) Movie ticket & popcorn, (b) Eraser & pencil, (e) Notebook & pen, (g) Mobile & earphones. Substitute: (c) Laptop & computer, (d) Air Conditioner & cooler, (f) Apple & banana.

Q11 Fig. 9.8 shows the demand curve DD' and Supply curve SS'. Based on the figure, answer the following questions:
a. What does point E represent in this market?
b. What is the equilibrium price and equilibrium quantity at point E?
c. Point A lies on DD'. Point B lies on SS'. What do the points A and B indicate about demand and supply? What does the gap between A and B (both on the upper dashed price line) represent?
d. Point F lies on DD'. Point C lies on SS'. What do the points F and C indicate about demand and supply? What does the gap between C and F (both on the lower dashed price line) represent?
e. If the price stays at the lower dashed line, what could happen next in a free market?

[Fig. 9.8: Demand curve DD' and Supply curve SS' intersecting at equilibrium E (about 250, 30 kg); an upper dashed price line at 300 with points A (on DD') and B (on SS'); a lower dashed price line below equilibrium with points C (on SS') and F (on DD')]

SOLUTION

a. Point E is the market equilibrium — the point where the demand curve DD' and the supply curve SS' intersect. At this point, the quantity demanded by buyers exactly equals the quantity supplied by sellers, so there is no excess demand or excess supply. The market is 'cleared' and there is no pressure for the price to change.

b. From Fig. 9.8, at point E: Equilibrium price ≈ 250 (E lies between the 200 and 300 gridlines), and Equilibrium quantity = 30 kg.

c. At the upper dashed price line (300): Point A on DD' shows the quantity demanded by buyers at 300 — it is relatively low (approximately 23 kg) because the high price discourages buying (Law of Demand). Point B on SS' shows the quantity supplied by sellers at 300 — it is higher (approximately 37 kg) because the high price incentivises more supply (Law of Supply). The gap between A and B represents excess supply (surplus): sellers are offering more than buyers are willing to purchase at 300.

d. At the lower dashed price line (below equilibrium, around 160): Point F on DD' shows a higher quantity demanded (approximately 43 kg) — the low price encourages buyers to demand more. Point C on SS' shows a lower quantity supplied (approximately 18 kg) — the low price reduces producer incentives. The gap between C and F represents excess demand (shortage): buyers want far more than sellers are willing to supply at this low price.

e. If the price stays at the lower dashed line in a free market, the excess demand (shortage) creates competitive pressure among buyers. Buyers who cannot get the product will offer to pay more, and sellers will realise they can charge higher prices. As a result, the price will naturally rise toward the equilibrium price of about 250. Simultaneously, higher prices will encourage sellers to supply more and discourage some buyers, reducing the shortage until the market reaches equilibrium.

Answer: a. E = market equilibrium (QD = QS, no surplus or shortage). b. Equilibrium price ≈ 250; Equilibrium quantity = 30 kg. c. A shows lower demand (~23 kg) and B shows higher supply (~37 kg) at 300; the gap = excess supply (surplus). d. F shows high demand (~43 kg) and C shows low supply (~18 kg) at the lower price; the gap = excess demand (shortage). e. The shortage will drive prices upward in a free market as buyers compete, pushing price toward the equilibrium of about 250.

Q12 Draw a market equilibrium graph using the following demand schedule.

Price ()	10	20	30	40	50
Q.D. (kg)	5	10	15	20	25
Q.S. (kg)	25	20	15	10	5

a. Plot the demand and supply curve using the above data.
b. Identify the equilibrium price and quantity.
c. Observe the above data and analyse what happens if the price is set at 20 or 40.

SOLUTION

a. Graph guidance: Draw Y-axis as Price () ranging from 0 to 50, and X-axis as Quantity (kg) ranging from 0 to 30. Plot demand curve (DD') using the five QD points — (5, 10), (10, 20), (15, 30), (20, 40), (25, 50) — and connect them with a downward-sloping line. Plot supply curve (SS') using the five QS points — (25, 10), (20, 20), (15, 30), (10, 40), (5, 50) — and connect them with an upward-sloping line. The two curves will cross at the equilibrium point.

b. Equilibrium: At Price = 30, QD = 15 kg and QS = 15 kg → QD = QS. Therefore, Equilibrium Price = 30 and Equilibrium Quantity = 15 kg.

c. At 20: QD = 10 kg, QS = 20 kg. Since QS > QD, there is excess supply (surplus) of 10 kg. Sellers have more stock than buyers want at this price. In a free market, competition among sellers will push the price upward toward 30.

At 40: QD = 20 kg, QS = 10 kg. Since QD > QS, there is excess demand (shortage) of 10 kg. Buyers want more than sellers are offering. Competition among buyers will drive the price upward toward 30.

In both cases, market forces push the price back toward the equilibrium of 30.

Answer: b. Equilibrium Price = 30; Equilibrium Quantity = 15 kg (QD = QS = 15). c. At 20: QS (20 kg) > QD (10 kg) → surplus of 10 kg → price rises toward 30. At 40: QD (20 kg) > QS (10 kg) → shortage of 10 kg → price rises toward 30. Both deviations self-correct as the market moves to equilibrium.