CFA Institute®
Investment Foundations

It's Free! Do it!

Module 3: INPUTS AND TOOLS

Chapter 4: Microeconomics

Ted Stephenson, CFA, CPA, CMA, CFP, MBA
Professor, George Brown College
St. James Campus
290 Adelaide St. E.,
Toronto, Ontario, M5T 2T9

Faculty Bio

Module	Topic	Weight	LOS	Exam Qs	Hours to Study	Module Practice Qs	Chapter Practice Qs
Module 1	**Industry overview**	5%	7	6	5	28	28
Chapter 1	The Investment Industry: A Top-Down View						
Module 2	**Ethics and regulation**	10%	14	12	10	91	
Chapter 2	Ethics and Investment Professionalism						49
Chapter 3	Regulation						42
Module 3	**Inputs and tools**	20%	50	24	20	291	
Chapter 4	Microeconomics						53
Chapter 5	Macroeconomics						57
Chapter 6	Economics of International Trade						47
Chapter 7	Financial Statements						70
Chapter 8	Quantitative Concepts						64
Module 4	**Investment instruments**	20%	29	24	20	213	
Chapter 9	Debt Securities						69
Chapter 10	Equity Securities						72
Chapter 11	Derivatives						42
Chapter 12	Alternative Investments						30
Module 5	**Industry structure**	20%	27	24	20	96	
Chapter 13	Structure of the Investment Industry						28
Chapter 14	Investment Vehicles						29
Chapter 15	The Functioning of Financial Markets						39
Module 6	**Serving client needs**	5%	12	6	5	76	
Chapter 16	Investors and Their Needs						35
Chapter 17	Investment Management						41
Module 7	**Industry controls**	20%	24	24	20	154	
Chapter 18	Risk Management						51
Chapter 19	Performance Evaluation						53
Chapter 20	Investment Industry Documentation						50
	Total	**100%**	**163**	**120**	**100**	**949**	**949**

AFTER COMPLETING THIS CHAPTER, YOU SHOULD BE ABLE TO DO THE FOLLOWING:

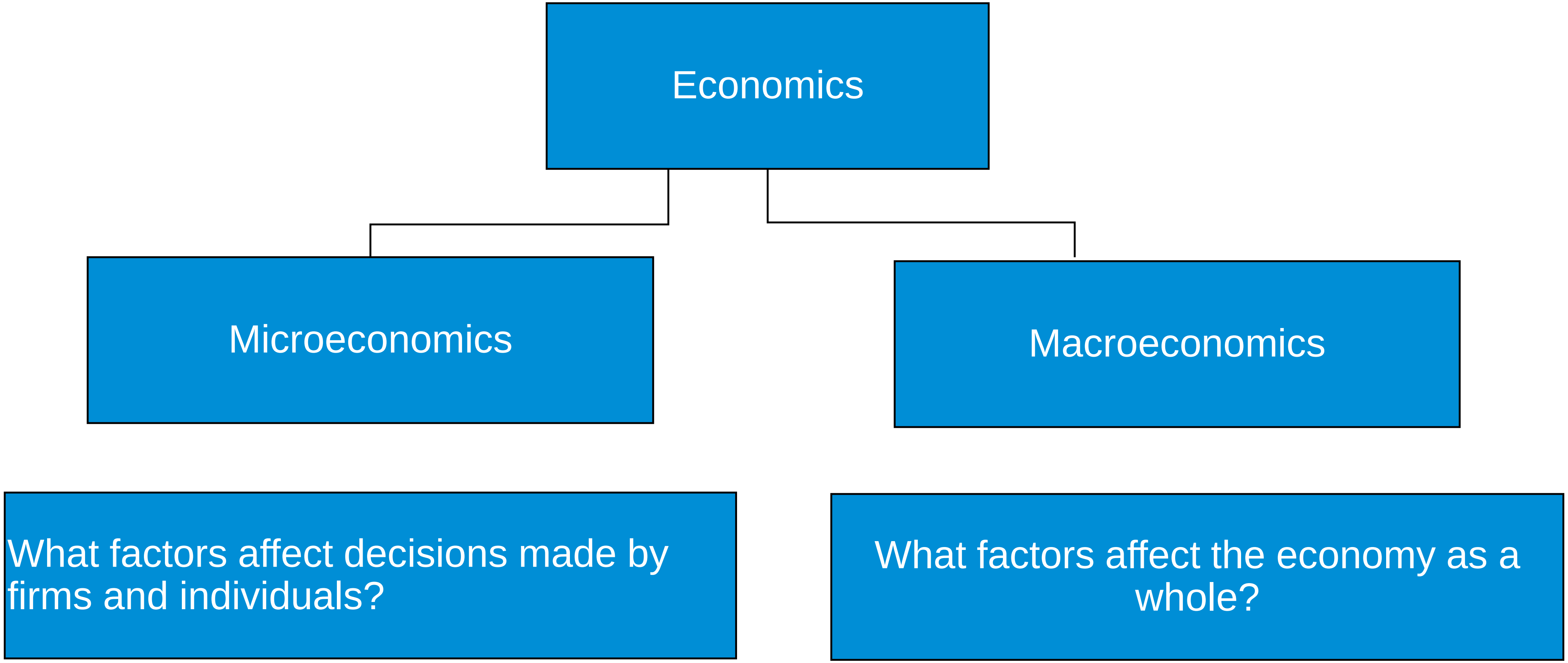
a) Define economics;
b) Define microeconomics and macroeconomics;
c) Describe factors that affect quantity demanded;
d) Describe how demand for a good or service is affected by substitute and complementary goods and services;
e) Describe factors that affect quantity supplied;
f) Describe market equilibrium;
g) Describe and interpret price and income elasticities of demand and their effects on quantity and revenue;
h) Distinguish between accounting profit and economic profit;
i) Describe production levels and costs, including fixed and variable costs, and describe the effect of fixed costs on profitability;
j) Identify factors that affect pricing;
k) Compare types of market environment: perfect competition, pure monopoly, monopolistic competition, and oligopoly.

ECONOMICS

Economics is the study of production, distribution, and consumption, or the study of choices in the presence of limited or scarce resources.

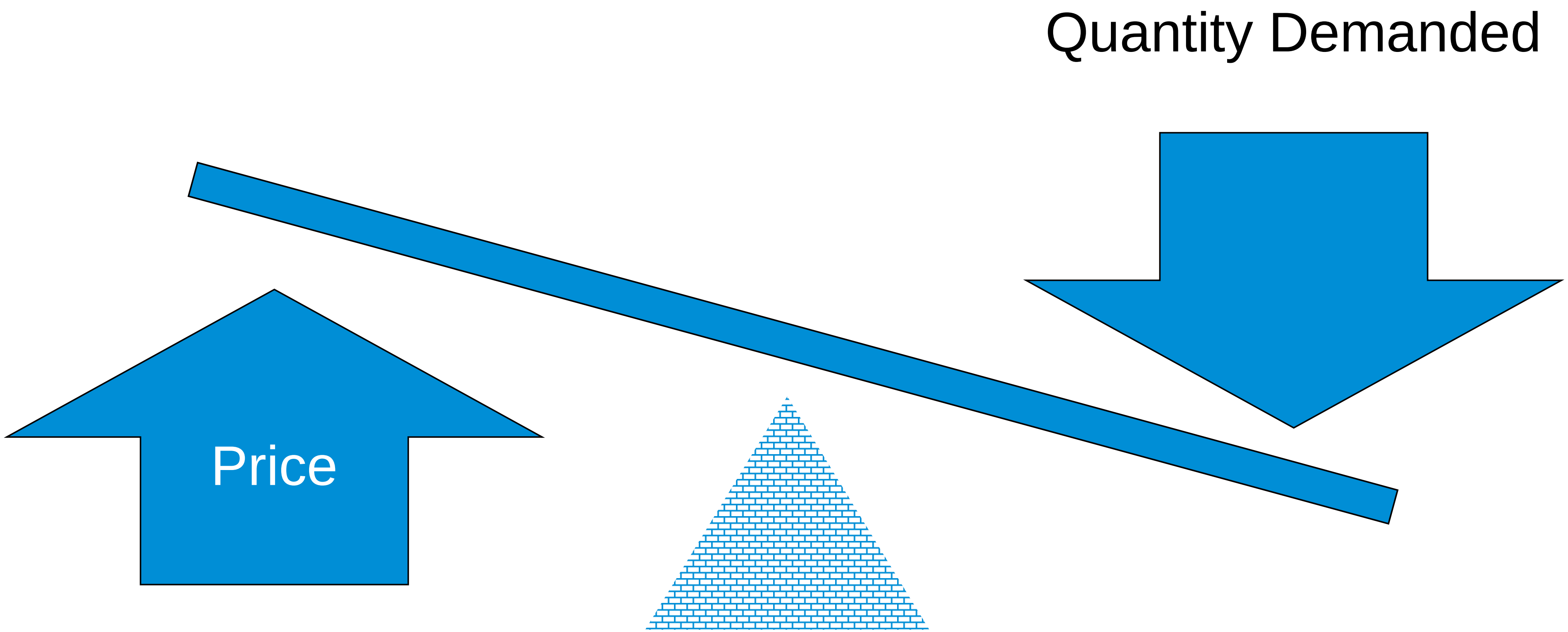
LOS a: Define economics.

MICROECONOMICS VS. MACROECONOMICS



LOS b: Define microeconomics and macroeconomics.

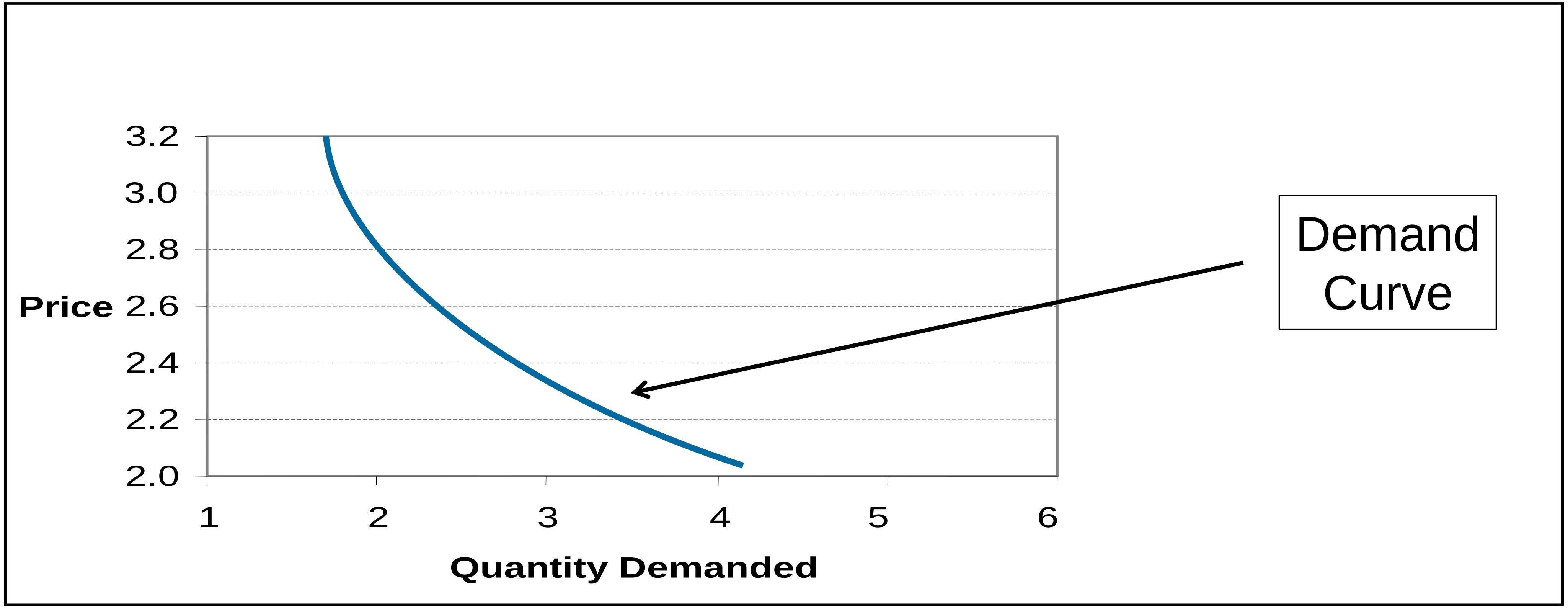
LAW OF DEMAND



Law of Demand: Quantity demanded and price of a good are usually inversely related.

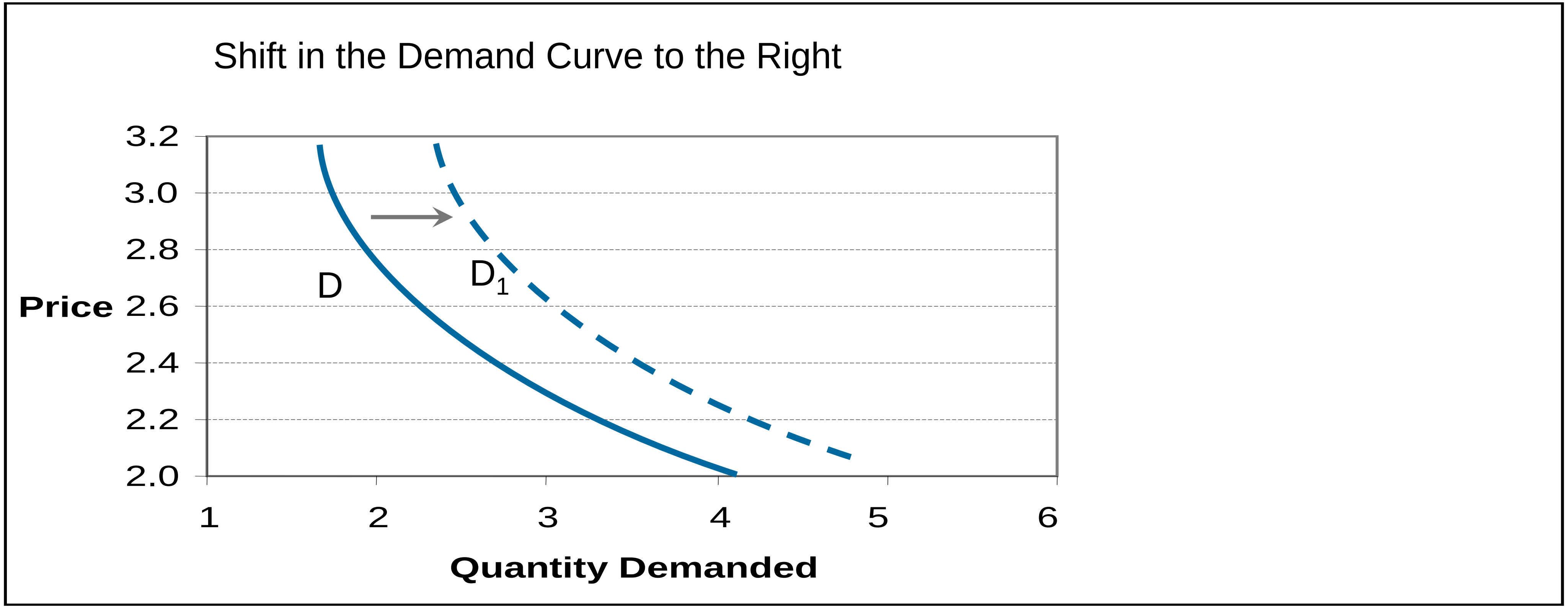
LOS c: Describe factors that affect quantity demanded.

DEMAND FOR PIZZA PER WEEK AT VARIOUS PRICES



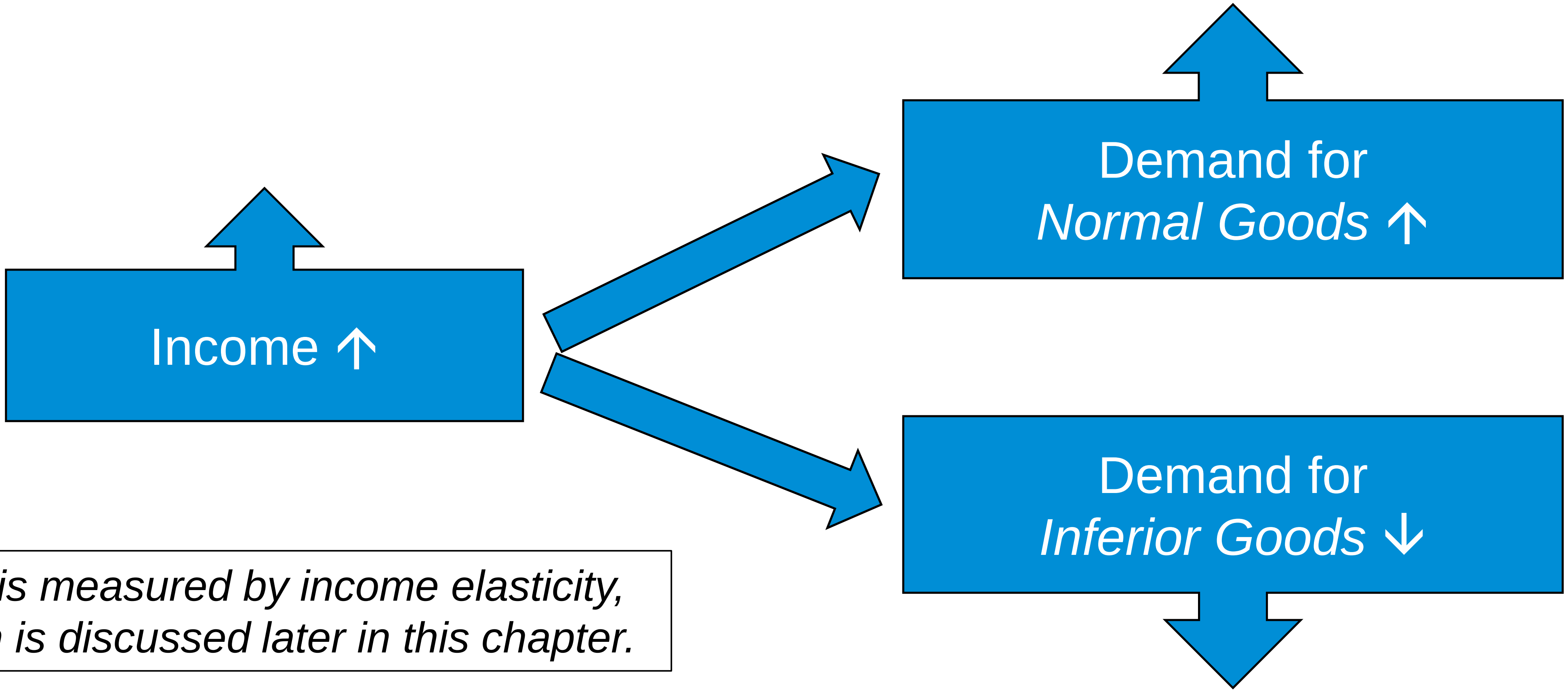
LOS c: Describe factors that affect quantity demanded.

SHIFT IN THE DEMAND CURVE (CHANGE IN DEMAND)



LOS c: Describe factors that affect quantity demanded.

EFFECT OF INCOME ON DEMAND:
NORMAL GOODS VS. INFERIOR GOODS



This is measured by income elasticity, which is discussed later in this chapter.

LOS c: Describe factors that affect quantity demanded.

FACTORS AFFECTING QUANTITY DEMANDED

Future Prices

Example: If consumers expect that the price of rice will increase as a result of a shortage of raw materials, the current quantity demanded may increase as consumers accumulate rice to avoid paying the higher price in the future.

General Tastes and Preferences

Example: If a report was published that linked eating chocolate to better health, demand for chocolate bars may increase.

LOS c: Describe factors that affect quantity demanded.

SUBSTITUTES VS. COMPLEMENTS

Price of sandwiches

Quantity demanded of substitute (pizzas)

Price of sandwiches goes up;
buy fewer sandwiches and more pizzas!

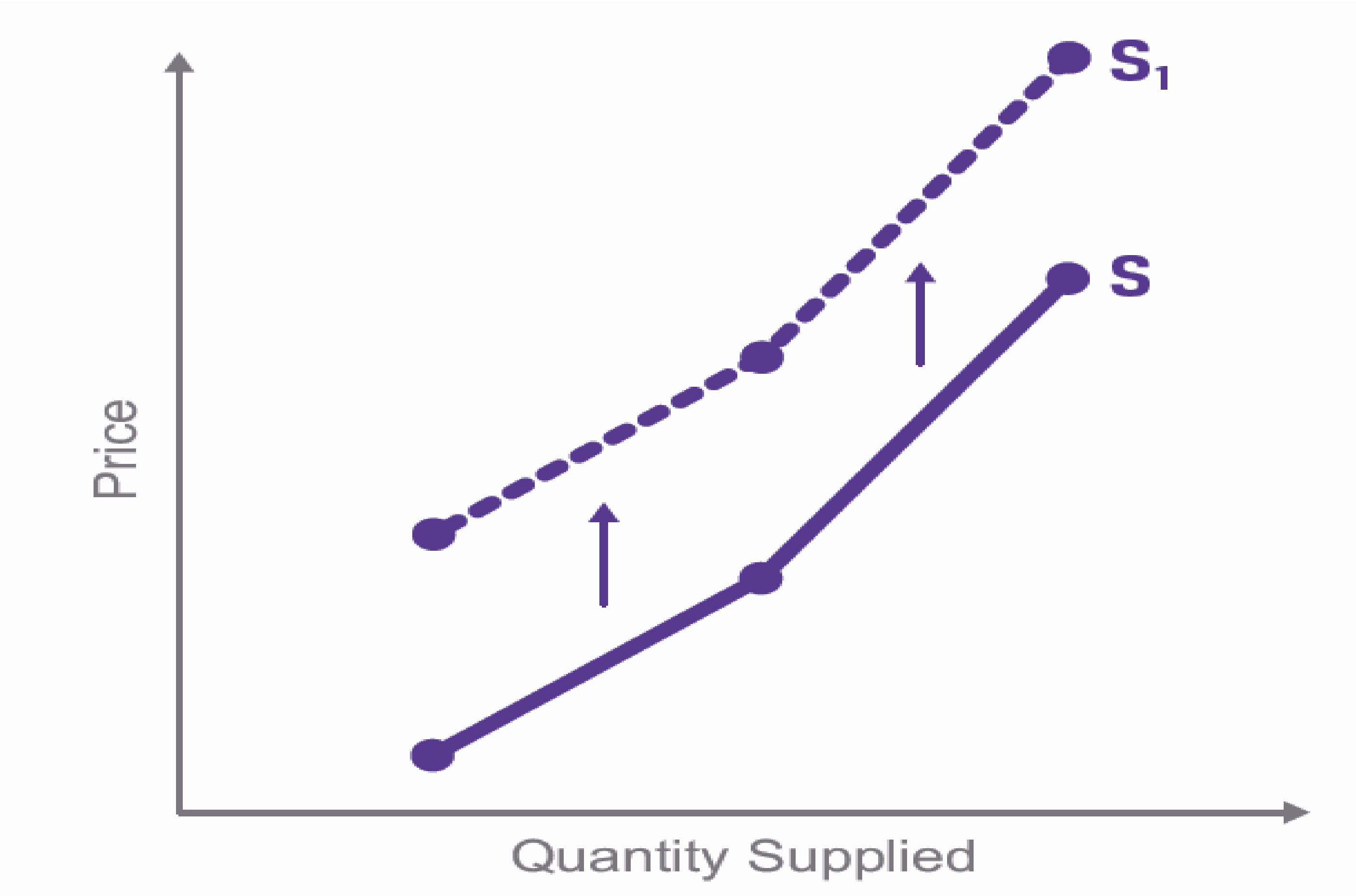
Price of ink cartridges

Quantity demanded of complement (printing paper)

Price of ink cartridges goes down;
buy more cartridges and paper!

LOS d: Describe how demand for a product or service is affected by substitute and complementary goods and services.

SUPPLY CURVE

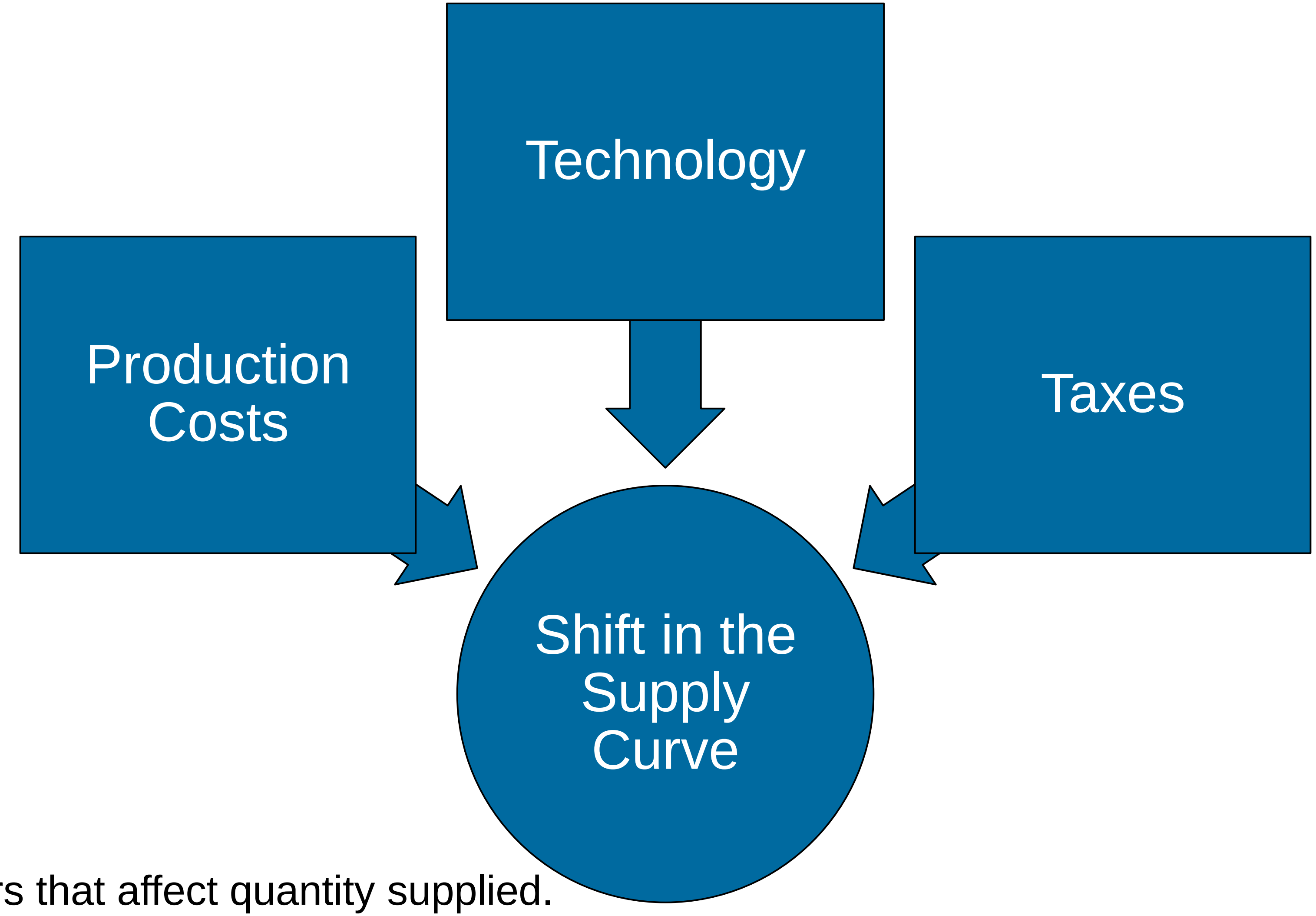


The **law of supply** states that when prices increase, the quantity supplied will increase (S).

Shifts in the supply curve (S ➔ S_1) occur in response to factors other than the price of the good or service, such as changes in production costs, technology, and taxes.

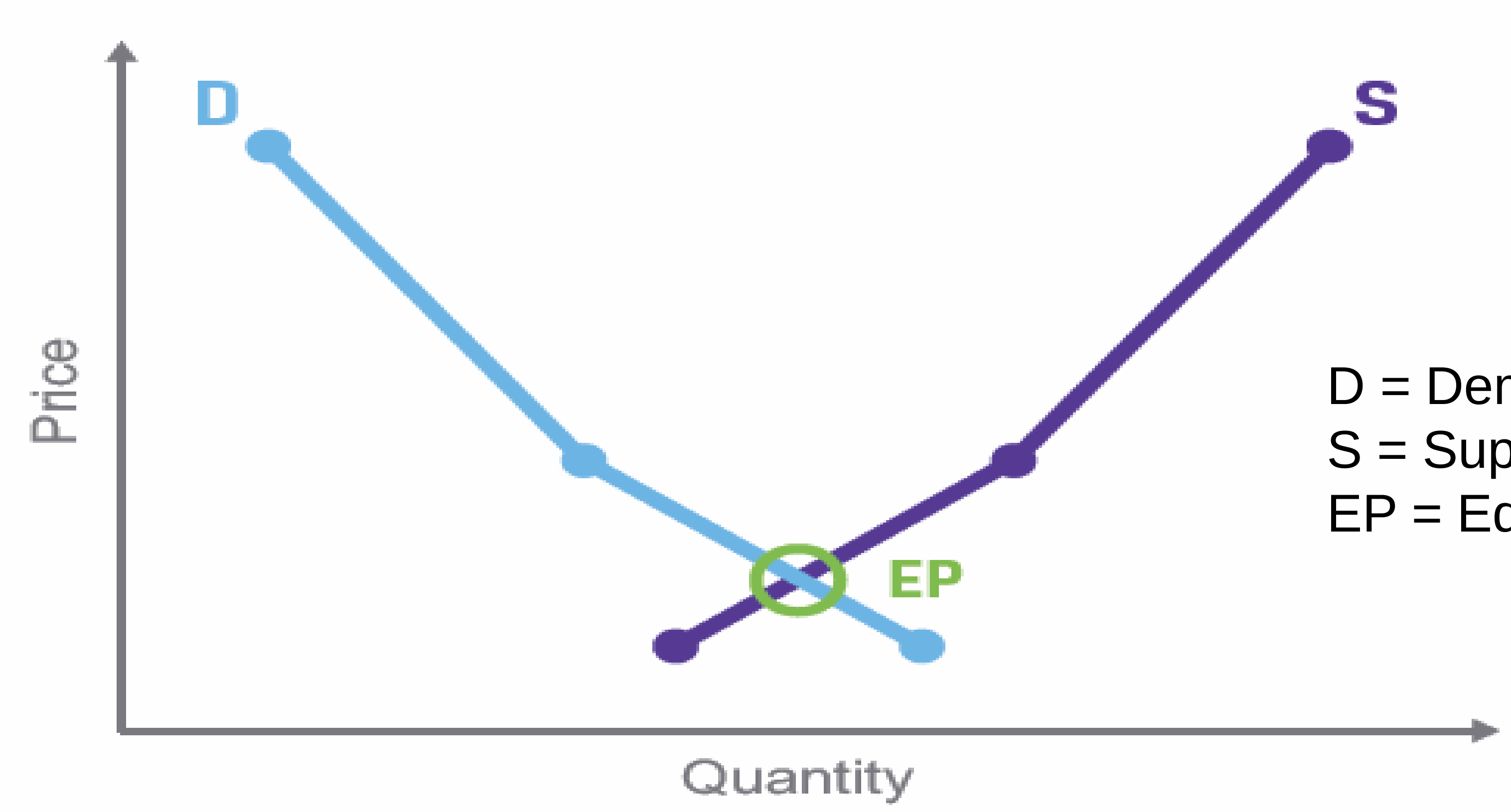
LOS e: Describe factors that affect quantity supplied.

SHIFTS IN THE SUPPLY CURVE



LOS e: Describe factors that affect quantity supplied.

MARKET EQUILIBRIUM



D = Demand curve
S = Supply curve
EP = Equilibrium price

The **equilibrium price (EP)** is the price at which the quantity **demanded (D) equals the quantity supplied (S)**.

LOS f: Describe market equilibrium.

PRICE ELASTICITY OF DEMAND

Price elasticity of demand =

$$\frac{\text{Percent change in quantity demanded}}{\text{Percent change in price}}$$

If a 10% decrease in the price of cars leads to a 15% increase in the quantity demanded, the price elasticity of demand for cars is:

15% / –10% = –1.5

If hotel room prices increase by 10% and the quantity demanded decreases by 20%, then the price elasticity is:

–20% / 10% = –2.0

LOS g: Describe and interpret price and income elasticities of demand and their effects on quantity and revenue.

MEASURES OF OWN PRICE ELASTICITY

Measure	Description
Less than –1	**Negatively Highly Elastic:** For a given percentage change in price, the quantity demanded will change by a greater percentage. The change is in the opposite direction.
–1	**Negatively Unit Elastic:** For a given percentage change in price, the quantity demanded will change by the same percentage. The change is in the opposite direction.
Greater than –1 to 0	**Negatively Inelastic:** For a given percentage change in price, the quantity demanded will change by a lesser percentage. The change is in the opposite direction.

LOS g: Describe and interpret price and income elasticities of demand and their effects on quantity and revenue.

MEASURES OF OWN PRICE ELASTICITY

Measure	Description
Greater than 0 but less than 1	**Positively Inelastic:** For a given percentage change in price, the quantity demanded will change by a lesser percentage. The change is in the same direction.
1	**Positively Unit elastic:** For a given percentage change in price, the quantity demanded will change by the same percentage. The change is in the same direction.
Greater than +1	**Positively, Highly elastic**: For a given percentage change in price, the quantity demanded will change by a greater percentage. The change is in the same direction.

LOS g: Describe and interpret price and income elasticities of demand and their effects on quantity and revenue.

PRACTICE Q

EORQ

Q. Which of the following statements best describes price inelasticity? A small change in price produces a:

A. proportional change in demand.
B. less than proportional change in demand.
C. disproportionally larger change in demand.

PRACTICE Q

EORQ

Q. Which of the following statements best describes price inelasticity? A small change in price produces a:

A. proportional change in demand.
B. less than proportional change in demand.
C. disproportionally larger change in demand.

Negatively Inelastic: For a given percentage change in price, the quantity demanded will change by a lesser percentage. The change is in the opposite direction.

Positively Inelastic: For a given percentage change in price, the quantity demanded will change by a lesser percentage. The change is in the same direction.

Solution

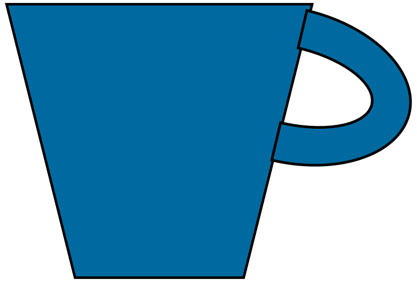
B is correct. If **price elasticity** is low or inelastic, changes in price are accompanied by less than proportional changes in the quantity demanded. This means demand is not very price sensitive. A is incorrect because a small change in prices would produce a proportional change in demand for a good exhibiting unit elasticity. C is incorrect because a small change in price would produce a disproportionally larger change in demand for a good exhibiting high price elasticity.

Microeconomics Learning Outcome

g. Describe and interpret price and income elasticities of demand and their effects on quantity and revenue

CROSS-PRICE ELASTICITY

A 5% increase in the price of coffee causes a 7% decrease in quantity of cream sold but a 7% increase in the quantity tea sold.



Cross-Price Elasticity

$$\frac{\%\Delta \text{ in quantity demanded of Good 1}}{\%\Delta \text{ in price of Good 2}}$$

%Δ = Percentage change

$$\frac{\%\Delta \text{ in quantity of cream}}{\%\Delta \text{ in the price of coffee}}$$

= –7% / 5% = –1.4

Negative means **complementary goods**

$$\frac{\%\Delta \text{ in quantity of tea}}{\%\Delta \text{ in the price of coffee}}$$

= 7% / 5% = 1.4

Positive means **substitute goods**

LOS g: Describe and interpret price and income elasticities of demand and their effects on quantity and revenue.

PRACTICE Q

Q. Which of the following pairs of items most likely has a negative cross-price elasticity of demand?

A. DVD players and DVDs

B. Cable TV and satellite TV

C. Landline phones and cell phones

LOS g: Describe and interpret price and income elasticities of demand and their effects on quantity and revenue.

PRACTICE Q

Q. Which of the following pairs of items most likely has a negative cross-price elasticity of demand?

A. DVD players and DVDs
B. Cable TV and satellite TV
C. Landline phones and cell phones

Solution

A is correct. A negative cross-price elasticity of demand indicates complementary goods, so a decrease in the price of one is usually accompanied by an increase in the quantity demanded of the other. DVD players and DVDs are complementary goods. The other cases are substitutes for one another, so if the price of one falls, more of the other will be demanded. Substitutes exhibit positive cross-price elasticities of demand. B is incorrect. Cable TV and satellite TV are substitutes: substitutes exhibit positive cross-price elasticities of demand. C is incorrect. Landline and cell phones are substitutes: substitutes exhibit positive cross-price elasticities of demand.

Microeconomics Learning Outcomes

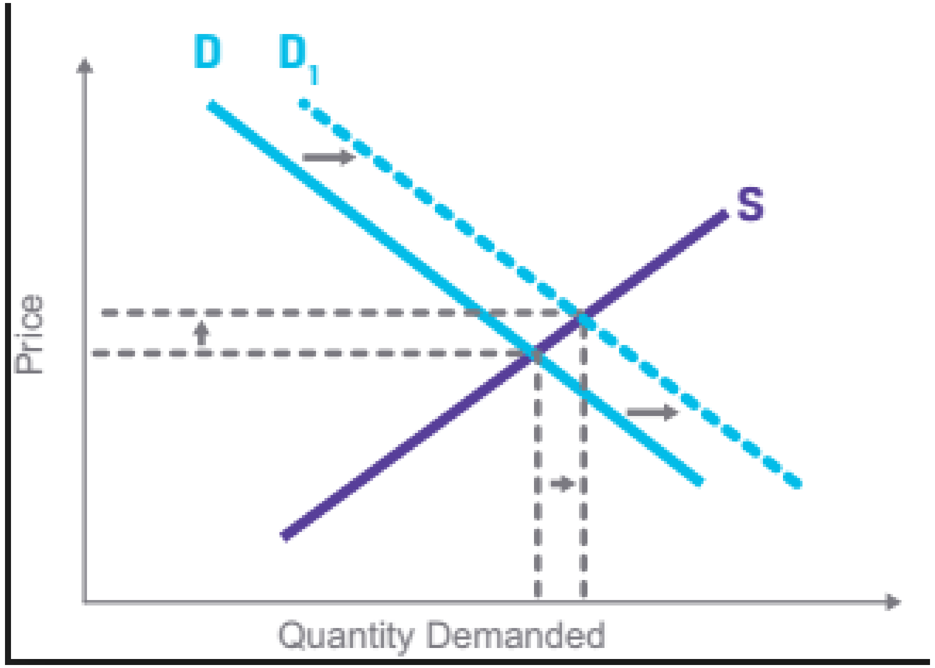
d. Describe how demand for a product or service is affected by substitute and complementary products and services

g. Describe and interpret price and income elasticities of demand and their effects on quantity and revenue

LOS g: Describe and interpret price and income elasticities of demand and their effects on quantity and revenue.

PRACTICE Q

Q. The shift to the right in the demand curve for an item from D to D1 is consistent with a decrease in:



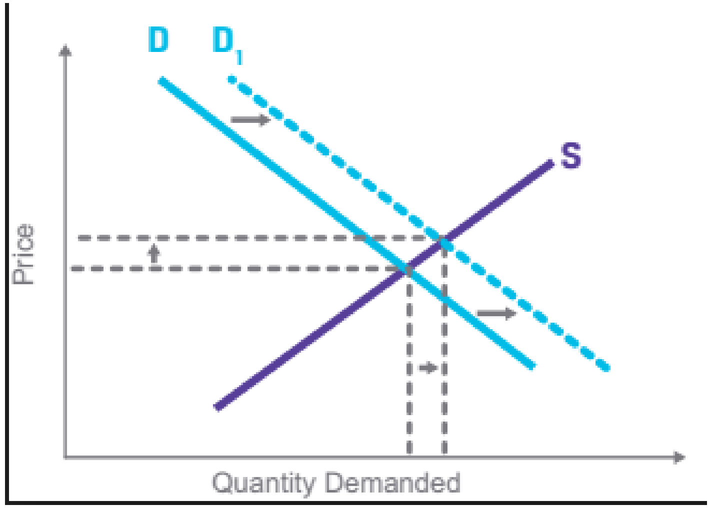
A. production costs

B. the price of a close substitute

C. the price of a close complement

PRACTICE Q

Q. The shift to the right in the demand curve for an item from D to D1 is consistent with a decrease in:

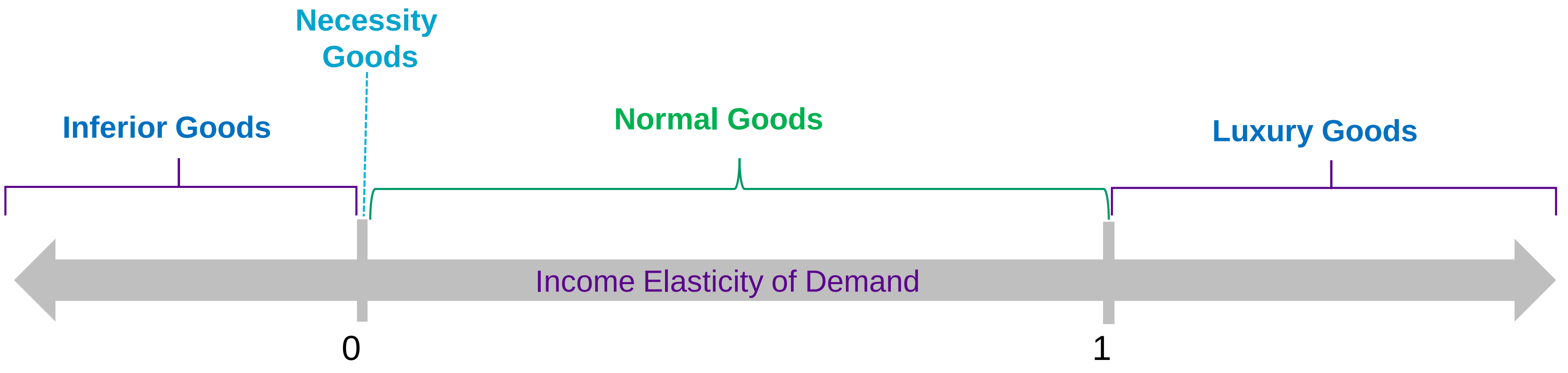


A. production costs
B. the price of a close substitute
C. the price of a close complement

C is correct. A shift to the right in the demand curve is consistent with increased demand for the item. This shift is likely to arise if the price of a close complement declines; for example, hot dog buns are a close complement to hot dogs. A decrease in the price of hot dogs should lead to an increase in the demand for both hot dogs and hot dog buns.

INCOME ELASTICITY OF DEMAND

$$\text{Income elasticity of demand} = \frac{\text{Percent change in quantity demanded}}{\text{Percent change in income}}$$



LOS g: Describe and interpret price and income elasticities of demand and their effects on quantity and revenue.

ECONOMIC VS. ACCOUNTING PROFITS

Assume revenues of:	EUR 5,000,000
Explicit costs of:	EUR 3,000,000
Implicit costs of:	EUR 1,600,000

Accounting Profits

= Revenues – Explicit costs

= EUR 5,000,000 – EUR 3,000,000

= EUR 2,000,000

Implicit Costs (Opportunity Costs)

= EUR 1,600.000

Economic Profits

= Accounting profits – Implicit costs

= EUR 2,000,000 – EUR 1,600,000

= EUR 400,000

Explicit Costs:
Employee salaries, utilities, product costs, advertising expenses, etc.

Implicit Costs:
Return on owner’s capital, risk of capital, value of owner’s time, etc.

LOS h: Distinguish between accounting profit and economic profit.

FIXED AND VARIABLE COSTS

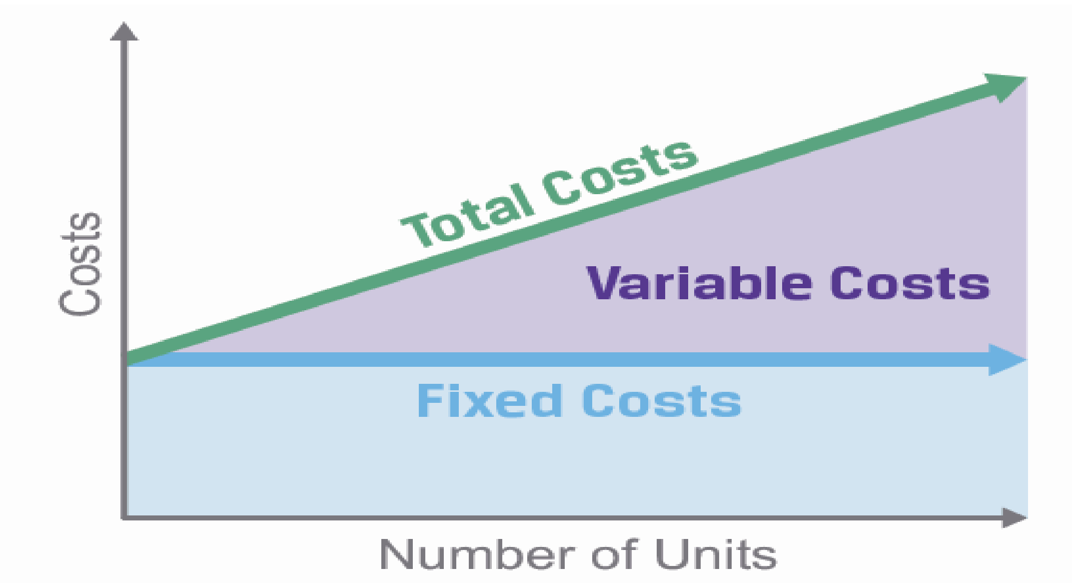
When operating at less than full capacity, an increase in production results in

- Little or no change in average variable costs.
- Lower average fixed and average total costs per unit.

So,

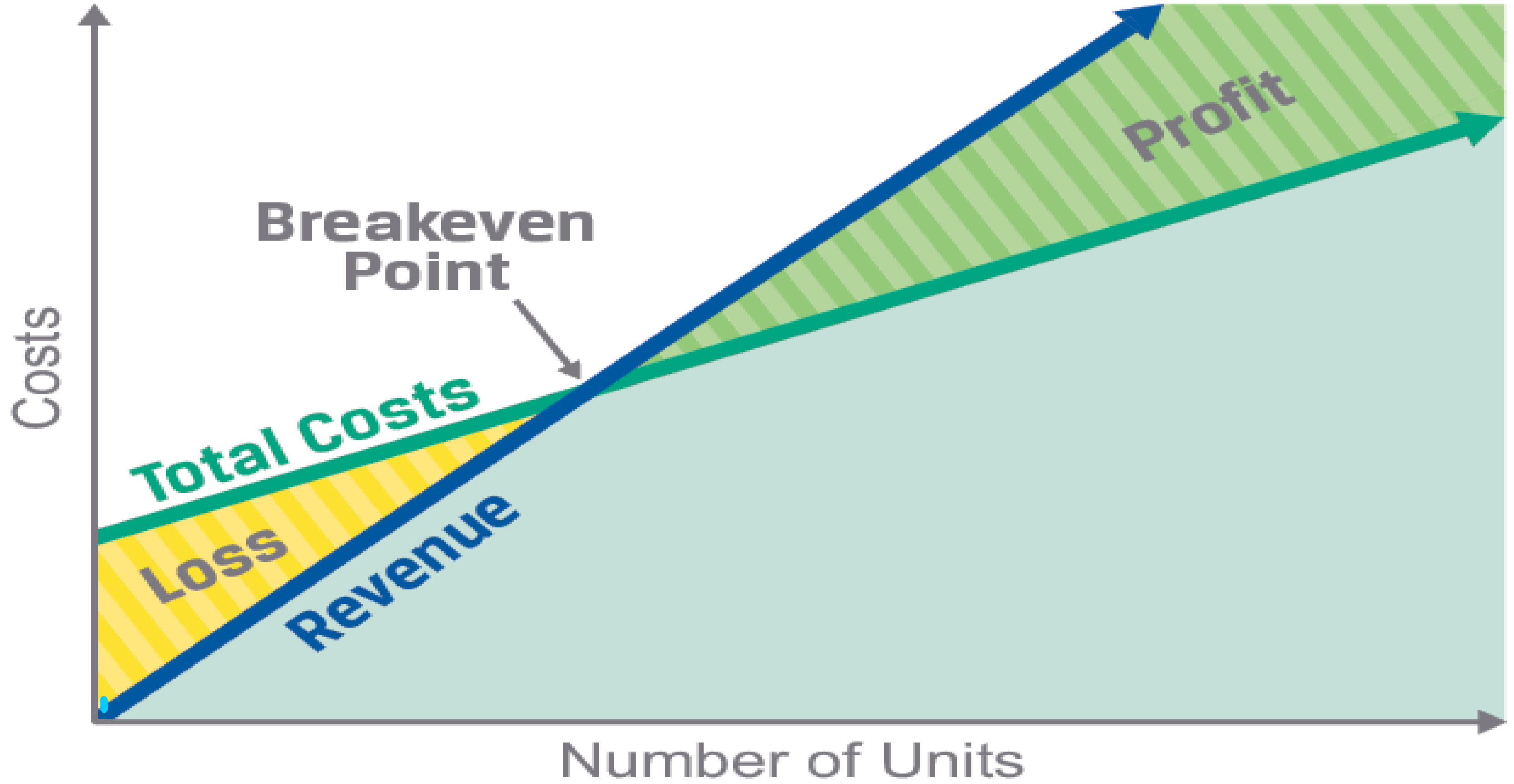
- If you produce 1 unit, its Total cost is
  Fixed cost + Variable cost for one unit.

- But if you produce 100 units, the average cost is
  (Total cost/100)



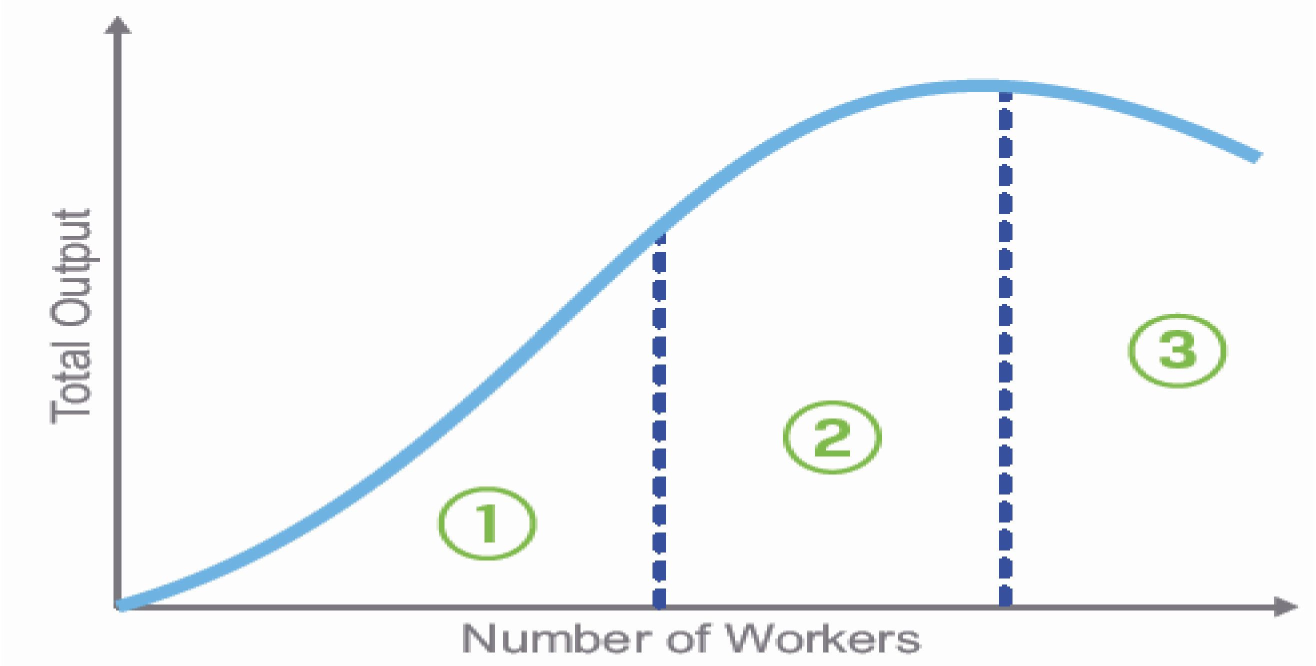
LOS i: Describe production levels and costs, including fixed and variable costs, and describe the effect of fixed costs on profitability.

REVENUE AND COSTS



LOS i: Describe production levels and costs, including fixed and variable costs, and describe the effect of fixed costs on profitability.

FIXED AND VARIABLE COSTS



Law of diminishing returns: Gains from adding variable inputs increase at a decreasing rate until full capacity is reached.

Having employees work overtime increases labour cost and production.

1 Increasing marginal returns: Total output increases rapidly
2 Diminishing marginal returns: Total output increases but at a decreasing rate
3 Negative marginal returns: Total output decreases

LOS i: Describe production levels and costs, including fixed and variable costs, and describe the effect of fixed costs on profitability.

OPERATING LEVERAGE

Companies with high fixed costs relative to variable costs have high operating leverage.
• For example, if production levels are very low for a steel mill (a factory or plant that produces steel), the fixed costs are massive relative to the revenues, and the steel mill will make a low profit or even suffer a loss.
• As production increases, variable costs will increase as a result of using additional inputs to the steel-making process.
• But the total costs per unit of steel produced will decrease because average fixed costs will fall and the steel mill will be increasingly profitable as output rises and its fixed costs are spread over more units.

LOS i: Describe production levels and costs, including fixed and variable costs, and describe the effect of fixed costs on profitability.

MAXIMIZING PROFIT

Marginal Cost

The cost of producing an incremental or additional unit

=

Marginal Revenue

The amount a company receives for an additional unit

Producing to the point at which marginal revenue equals marginal cost will, in theory, maximise profit.

LOS i: Describe production levels and costs, including fixed and variable costs, and describe the effect of fixed costs on profitability.

FACTORS AFFECTING PRICING

Supply: Does it have a unique characteristic or not?

Demand: If demand is greater than supply, competing goods will benefit

Income levels and elasticity

Industry structure *(next two slides)*

LOS j: Identify factors that affect pricing.

INDUSTRY STRUCTURE

Perfect Competition	• Many buyers and sellers trading a uniform commodity • Little or no barriers to entry • No single buyer or seller can affect the market price
Pure Monopoly	• Single company that produces a product for which there are no close substitutes • Significant barriers to entry

LOS k: Compare types of market environment: perfect competition, pure monopoly, monopolistic competition, and oligopoly.

INDUSTRY STRUCTURE

Monopolistic Competition	• Many buyers and sellers, but because of product differentiation, they are sold at a range of prices • No major barriers to entry
Oligopoly	• Market is dominated by a small number of large companies because the barriers to entry are high

LOS k: Compare types of market environment: perfect competition, pure monopoly, monopolistic competition, and oligopoly.

SUMMARY

- Microeconomics vs. macroeconomics
- Supply, demand, and market equilibrium
- Price and income elasticities
- Substitute and complementary goods
- Economic profit vs. accounting profit
- Production: Fixed and variable costs
- Factors affecting pricing
- Industry structure