

Economics Notes

Lectures 1- 6

Lecture 1-

WHAT IS ECONOMICS?

Economics: *the study of **choices** that individuals, businesses, governments and societies must make in order to deal with the problem of **scarcity**, and the **incentives** that influence and reconcile those choices.*

Scarcity: *our inability to satisfy all our wants.*

Incentive: *a reward that encourages an action or a penalty that discourages an action.*

Microeconomics: *the study of choices that individuals and businesses make, the way those choices interact in markets, and the influence of government.*

Macroeconomics: *the study of the performance of the national and global economies.*

Two main economic questions:

1. What, how (**factors of production**) and for whom, to produce?
2. How does the pursuit of self-interest promote social interest?

Factors of production:

- Land earns rent
- Labour earns wages
- Capital earns interest
- Entrepreneurship earns profit

Opportunity Cost

- The highest-valued alternative that we must give up in order to get what we want
- A choice is a trade-off, which emphasises cost as an opportunity forgone

Choosing at the Margin

- Choices are often made at the **margin** → evaluate the consequences of making *incremental changes* in the use of their resources
- **Marginal benefit:** *the benefit from consuming one more unit of a good or service*
- **Marginal cost:** *the opportunity cost of producing one more unit of a good or service*
- $MB > MC$ = incentive to do more of that activity
- $MC > MB$ = disincentive to do more of that activity
- Incentives = key to reconciling self-interest and social interest
- Social interest is served by emphasising the role of institutions in creating incentives to behave in the social interest

The Economic Problem

Production Possibilities and Opportunity Cost

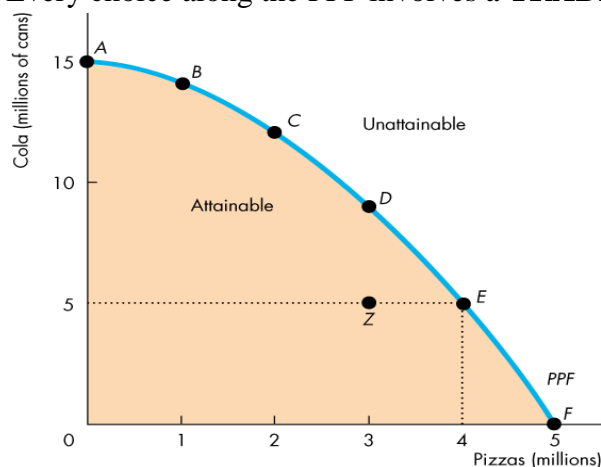
Production Possibilities Frontier (PPF): *the boundary between those combinations of $g + s$ that can be produced and those that cannot*

- Points outside the PPF are unattainable

- **Production efficiency** is achieved if we cannot produce more of one good without producing less of another

Production Possibilities Curve

- Every choice along the PPF involves a **TRADEOFF**

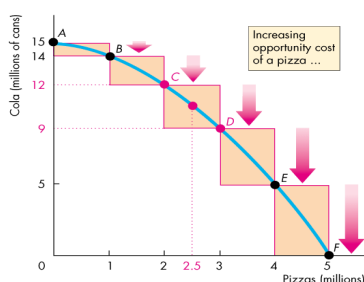


- On this *PPF*, we must give up some cola to get more pizzas or give up some pizzas to get more cola. The opportunity cost of a pizza is the cola forgone.

- In moving from *E* to *F*, the quantity of pizzas increases by 1 million. The quantity of cola decreases by 5 million cans.

- The opportunity cost of the fifth 1 million pizzas is 5 million cans of cola. One of these pizzas costs 5 cans of cola.

- N.B: the opportunity cost of one item is the **inverse** of the opportunity cost of the other
- PPF is concave → because not all resources are equally productive → as the quantity of a good increases, so does its opportunity cost
- Analysis of cost and benefit → allows us to determine the alternative efficient quantities to produce
- All points along PPF are **efficient**



(a) PPF and opportunity cost

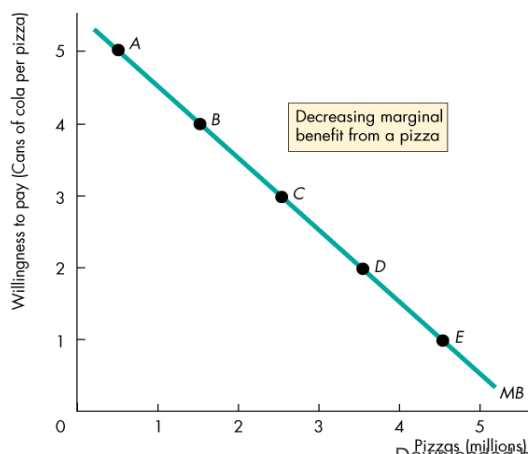
- The **marginal cost** of a good or service is the opportunity cost of producing *one more unit* of it.

- The opportunity cost of producing one more pizza is the marginal cost (MC) of a pizza.

- The **marginal benefit** (MB) of a good or service is the benefit received from consuming one more unit of it; we measure marginal benefit by the amount that a person is *willing to pay* for an additional unit of a good or service.

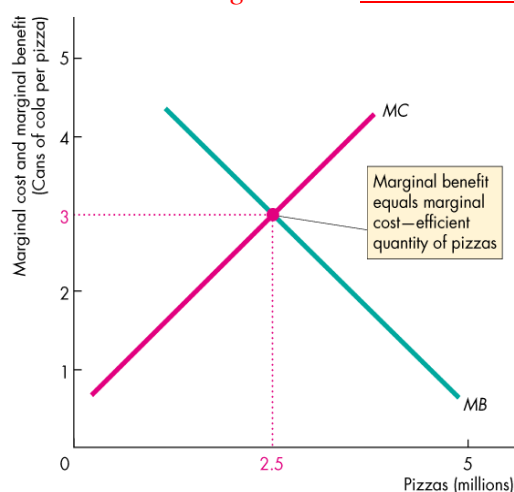
- It is a general principle that the more we have of any good, the smaller is its marginal benefit and the less we are willing to pay for an additional unit of it.

- We call this general principle the **principle of decreasing marginal benefit**.



- The **marginal benefit curve** shows the relationship between the marginal benefit of a good and the quantity of that good consumed

- The MB curve slopes downward to reflect the principle of decreasing marginal benefit
 - **Preferences:** *description of a person's likes and dislikes*
 - Described using the concepts of marginal benefit and the MB curve
 - Measure MB → by the amount that a person is willing to pay for an additional unit of a good or service
 - **Principle of Decreasing Marginal Benefit:** more we have of any good → the smaller its marginal benefit & the less we are willing to pay for an additional unit
 - **Marginal Benefit Curve:** shows the r/s between the MB of a good and the quantity of that good consumed
- **Production Efficiency:** *When we cannot produce more of any one good without giving up some other good*
- **Allocative Efficiency:** *When we cannot produce more of any one good without giving up some other good that we value more highly*



- The point of allocative efficiency is the point on the PPF at which marginal benefit equals marginal cost.

- always the point of interception

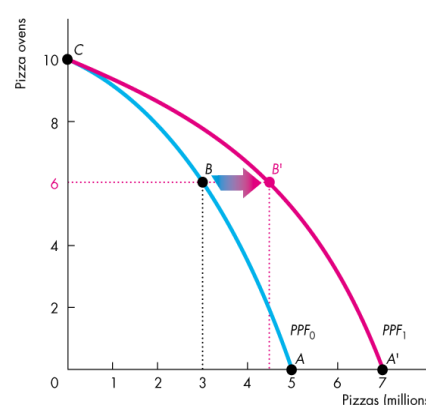
(b) Marginal benefit equals marginal cost

Economic Growth- The expansion of production possibilities—an increase in the standard of living— (expanding PP curve= eco growth)

Two key factors influence economic growth:

- Technological change
- Capital accumulation

Technological change is the development of new goods and of better ways of producing goods and services: to promote technological change and growth we must use research and development (produce new capital/ decrease consumption)



Capital accumulation is the growth of capital resources, which includes *human capital*.

Cost of economic growth

- Lost production → resources allocated instead to research and development ** opportunity cost of eco growth = less current consumption

Economic Coordination

- Allows us to reap gains from trade

- Efficient coordination needs involvement from four complimentary social institutions
 - A **firm** is an economic unit that hires factors of production and organizes those factors to produce and sell goods and services.
 - A **market** is any arrangement that enables buyers and sellers to get information and do business with each other.
 - **Property rights** are the social arrangements that govern ownership, use, and disposal of resources, goods or services.
 - **Money** is any commodity or token that is generally acceptable as a means of payment

Lecture 2-

DEMAND AND SUPPLY

Market and Prices

- **Market:** *any arrangement that enables buyers and sellers to get information and do business with each other*
- **Competitive Market:** *a market that has many buyers and many sellers, so no single buyer or seller can influence the price*
- **Money Price:** *the amount of money needed to buy a good*
- **Relative Price:** *the ratio of the money price of a good, to the money price of the next best alternative good – its opportunity cost*

DEMAND

- **Demand:** *the entire relationship b/w price and quantity demanded*
- **Quantity Demanded:** *the amount of a good or service that consumers plan to buy during a particular time period, at a particular price*
- Reflects a decision about which wants to satisfy
- The **law of demand** states:

Other things remaining the same, the higher the price of a good, the smaller is the quantity demanded; and; the lower the price of a good, the larger is the quantity demanded.

The law of demand results from the:

- Substitution effect
- Income effect

Substitution effect

When the relative price (opportunity cost) of a good or service rises, people seek substitutes for it, so the quantity demanded of the good or service decreases.

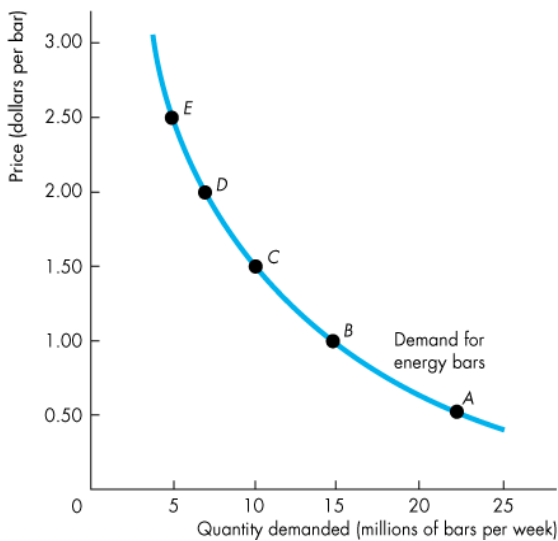
- eg: increase \$ of wine= increase D for beer

Income effect

When the price of a good or service rises relative to income, people cannot afford all the things they previously bought, so the quantity demanded of the good or service decreases.

- eg: increase \$= decrease purchasing power & decrease D

DEMAND CURVE- when all other things remain the same besides PRICE



- inverse relationship bw Q and D
- moves the entire curve with change in D

- 6 main factors that generate change in D

1. The prices of related goods

Substitute: pepsi or coke (similar)

Increase \$ Pepsi = increase D Coke

Compliments: cars and petrol (work together)

Increase \$ petrol = decrease D cars (inverse)

2. Expected future prices

- increase future \$ = increase D NOW

3. Income

normal goods: increase income = increase D

inferior (cheaper goods): opposite

4. Expected future income

5. Population- increase population = increase D

6. Preferences

SUPPLY CURVE- reflects the decision of a seller of what G&S to sell

If a firm supplies a good or service, then the firm:

1. Has the resources and the technology to produce it,
2. Can profit from producing it, and
3. Has made a definite plan to produce and sell it.

- Resources and technology determine what is possible to produce; supply reflects a decision about which technologically feasible items to produce
- **Quantity supplied**: *the amount that producers plan to sell during a given time period at a particular price*

The **law of supply**: Other things remaining the same, the higher the price of a good, the greater is the quantity supplied; and the lower the price of a good, the smaller is the quantity supplied.

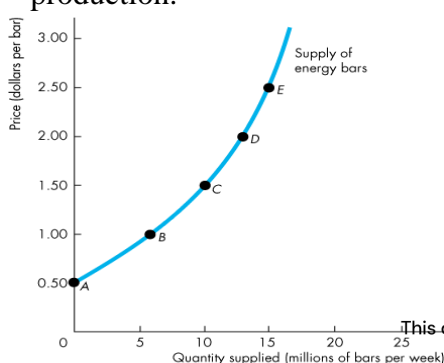
- **direct relationship**: Q produced and \$ sold

The law of supply results from the general tendency for the marginal cost of producing a good or service to increase as the quantity produced increases.

- **increase marginal cost as increase Q (only if can receive profit)**

- **eg**: if costs \$1 to produce extra pen and you are unable to profit by \$1 then won't produce

Producers are willing to supply a good only if they can at least cover their marginal cost of production.



↑ \$ can be charged = ↑ S

Price on the curve represents the marginal cost of producing G

- Supply **increases** → curve shifts **right**
- Supply **decreases** → curve shifts **left**
- Supply curve → also a *minimum supply price* curve

The 5 main factors that change supply of a good are:

1. The prices of factors of production

- \uparrow \$ steel = decrease S of cars

2. The prices of related goods produced

- Substitutes: using resources to produce one good, prevents production of another
 - **Eg:** \uparrow \$ of leather pouches = decrease S of leather belts (bc want to sell more pouches)
- Compliments: production of one good trigger production of another
 - **Eg:** \uparrow \$ of beef = \uparrow incentive to kill cows = \uparrow S leather

3. Expected future prices

- \uparrow expected \$ = decrease current S; so \uparrow S later

4. The number of suppliers

5. Technology- \uparrow technology = \uparrow S (producing more of G at lower cost)

6. The state of nature

Market Equilibrium

Equilibrium is a situation in which opposing forces balance each other. Equilibrium in a market occurs when the price balances the plans of buyers and sellers.

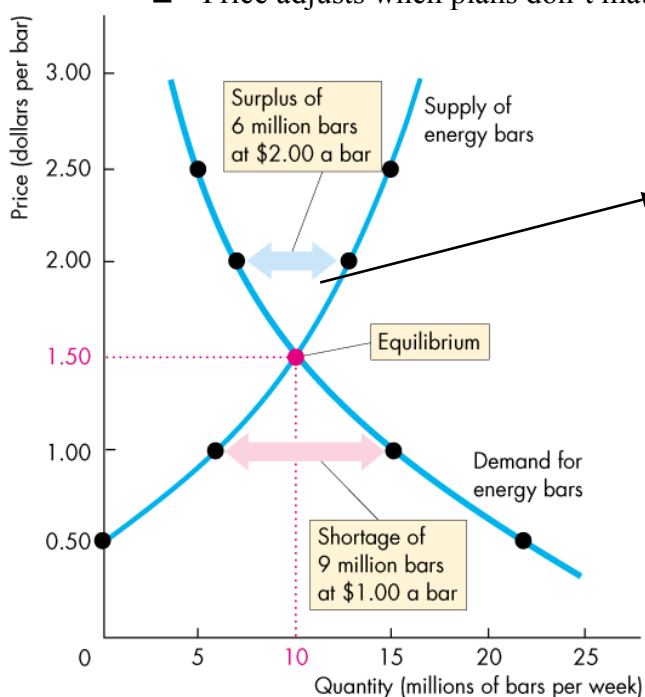
- WHEN $D=S=EQUILIBRIUM$ \$

The **equilibrium price** is the price at which the quantity demanded equals the quantity supplied.

The **equilibrium quantity** is the quantity bought and sold at the equilibrium price.

- Price regulates buying and selling plans.

- Price adjusts when plans don't match.



- in a competitive market; equilibrium is represented by the **intersection between the D&S curves**

- **Surplus**: because S is bigger than D
 - so producers must decrease \$
 - so, as \$ decreases; size of surplus decreases
- **Shortage**: as \uparrow \$ = \downarrow D
 - back to equilibrium

- $\uparrow D = \uparrow$ equilibrium \$ & \uparrow equilibrium Q
- $\uparrow S = \uparrow$ Q supplied & \downarrow \$

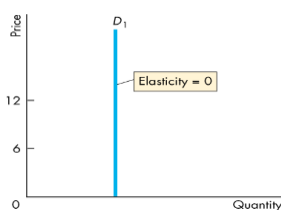
Elasticity

Price Elasticity of Demand - is a units-free measure of the responsiveness of the quantity demanded of a good to a change in its price when all other influences on buyers' plans remain the same.

$$= \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}$$

- formula is always a negative value
BUT focus on magnitude; so don't need negative

$$\text{Percentage Change} = \frac{(\text{new} - \text{initial})}{((\text{new} + \text{initial}) / 2)}$$

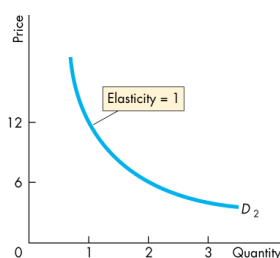


(a) Perfectly inelastic demand

Perfectly Inelastic - price elasticity = 0

- Q doesn't change with \$ change

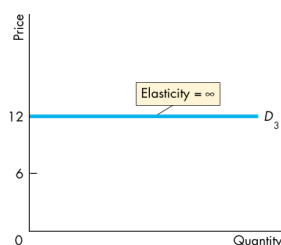
Eg: food



(b) Unit elastic demand

Unit Elastic - price elasticity = 1

- change in Q = change in \$



(c) Perfectly elastic demand

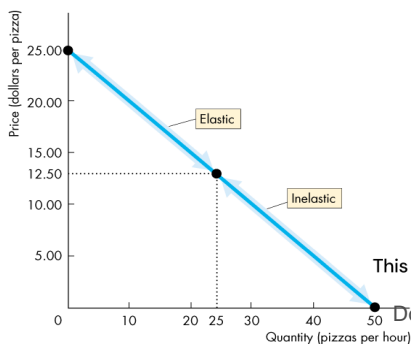
Perfectly Elastic - price elasticity = infinite

- price barely changes and HUGE Q change

Eg: luxuries

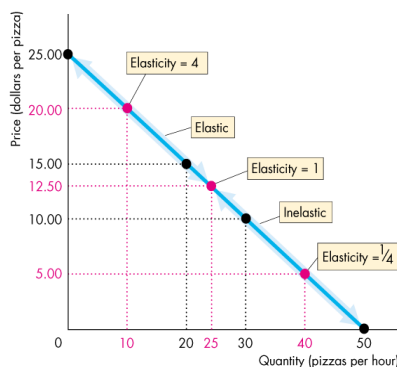
General Cases

- the price elasticity of demand is *less* than 1 and the good has **inelastic demand**.
 - Change in Q LESS than change in \$
 - When the price elasticity of demand is $< 1 \rightarrow$ good has **inelastic demand**
- the price elasticity of demand is *greater* than 1 and the good has **elastic demand**.
 - Change in Q GREATER than change in \$
 - When the price elasticity of demand is $> 1 \rightarrow$ good has **elastic demand**



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- D becomes less elastic as ↓\$



- AT MIDPOINT; elasticity=1

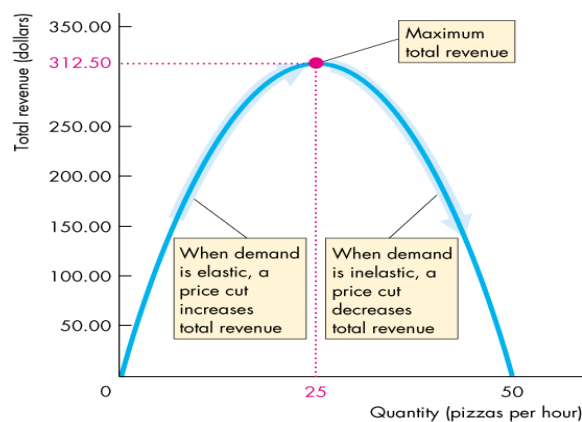
- shows how change in \$ effects revenue

N.B:

- We express Δ in price as a % of avg. price (avg. of initial and new price)
- We express Δ in quantity demanded as a % of avg. quantity demanded (avg. of initial and new quantity)

Total Revenue and Elasticity

- **Total Revenue: $P \times Q$**
 - Δ price $\rightarrow \Delta$ total revenue but a price rise doesn't always increase total revenue
 - Elasticity effects the r/s between P and Q ** it effects total revenue
- Change in total revenue due to change in price, depends on elasticity of demand
 - $e_D > 1 \rightarrow$ fall in price by 1% = increase in quantity by $> 1\%$ \rightarrow increased REV
 - $e_D < 1 \rightarrow$ fall in price by 1% = increase in quantity by $< 1\%$ \rightarrow decreased REV
 - $e_D = 1 \rightarrow$ fall in price by 1% = increase in quantity by 1% \rightarrow unchanged REV



(b) Total revenue

Total revenue test: method of estimating the price elasticity of demand by observing the change in total revenue that results from a price change

- Three factors influencing elasticity of demand:
 1. Closeness of substitutes **e.g. close substitutes → highly elastic**
 - a. Necessities like food/housing have inelastic D
 2. Proportion of income spent on the good **e.g. higher proportion → highly elastic**
 3. Time elapsed since a price change **e.g. over longer periods → higher elasticity**
- **Cross Elasticity of Demand:** *measures responsiveness of demand for a good to a change in the price of a substitute or compliment, all other things remaining the same*
 - Is **positive** → for substitutable goods
 - Is **negative** → for complimentary goods
- **Calculating Cross Elasticity of Demand:**

$$= \frac{\text{Percentage change in quantity of good X demanded}}{\text{Percentage change in price of good Y}}$$

Income Elasticity of Demand

Income Elasticity: *measures how the quantity demanded of a good response to a change in income, all other things remaining the same*

Calculating Income Elasticity of Demand:

$$= \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in income}}$$

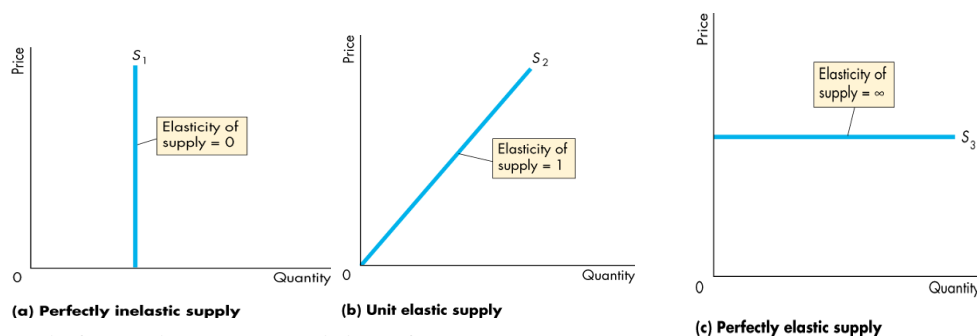
- $e_Y > 0 \rightarrow$ demand is income **elastic** → good = **normal**
- $0 < e_Y < 1 \rightarrow$ demand is income **inelastic** → good = **normal**
- $e_Y < 0 =$ **inferior** goods
 - eg: macdonalds- \uparrow income = \downarrow D

Elasticity of Supply

Elasticity of Supply: *measures the responsiveness of the quantity supplied to a change in the price of a good, all other influences on selling remaining the same*

Calculating Elasticity of Supply:

$$= \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in price}}$$



influencing the elasticity of supply:

1. **Resource substitution possibilities** → greater the ability to substitute, greater its elasticity

2. **Time frame for supply decisions** → more time that passes after a price change, greater its elasticity
- *Momentary Supply*: perfectly inelastic → quantity supplied immediately following a price change is constant
 - *Short-run Supply*: somewhat elastic
 - *Long-run Supply*: most elastic

Lecture 3-

PRODUCT CHOICES AND CONSTRAINTS

The Firm and Its Economic Problem

Firm: institution that hires FOP and organises them to produce and sell g & s

Firm's goal: MAXIMISE PROFIT

Economic Profit = TR – TC, where TC = opportunity cost of production

N.B:

- different from how accountants measure profits
- accounting profits will always be higher → doesn't account for implicit costs

Opportunity Cost: the value of a firm's best alternative use of resources → it includes explicit and implicit costs

Explicit Costs

- Amount spent by a firm on resources because the firm could have bought different resources to produce other goods or services e.g. **Taxi driver – petrol, maintenance**

Implicit Costs

- Implicit costs are incurred when a firm uses its own capital (**implicit rental rate of capital**) and/or owner's time and financial resources e.g. **Taxi driver – labour time of driver, use of car (capital), managerial abilities (entrepreneurship)**
- all decisions can be placed into two time frames:
 1. **SHORT RUN = inflexible** → time frame where one or more resources in production is fixed, usually CAPITAL because it is more difficult to change
 2. **LONG RUN = flexible** → time frame in which the quantities of all resources can be varied

SHORT RUN TECHNOLOGY CONSTRAINTS

The Firm's Production Process (r/s with financial context)

Physical Process: INPUTS (labour, land, capital) → OUTPUTS (g & s)

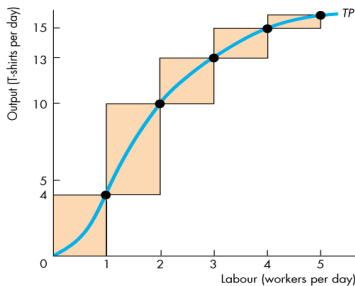
Financial Process: COST (wages, payments for capital) → REVENUE

- to ↑ short run output → must ↑ amount of labour

there is a distinctive r/s between output and quantity of labour described through three concepts:

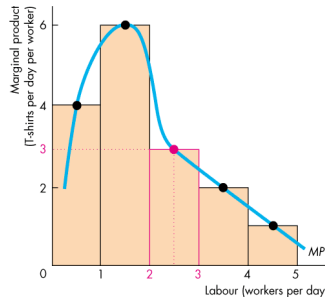
1. **total product:** total output produced given different amounts of labour, where all other FOP are fixed
2. **marginal product:** $\frac{\Delta TP}{\Delta L}$
3. **average product:** $\frac{TP}{L}$

Total Product Curve



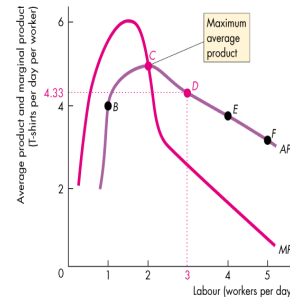
(a) Total product

Marginal Product Curve



(b) Marginal product

Average Product Curve

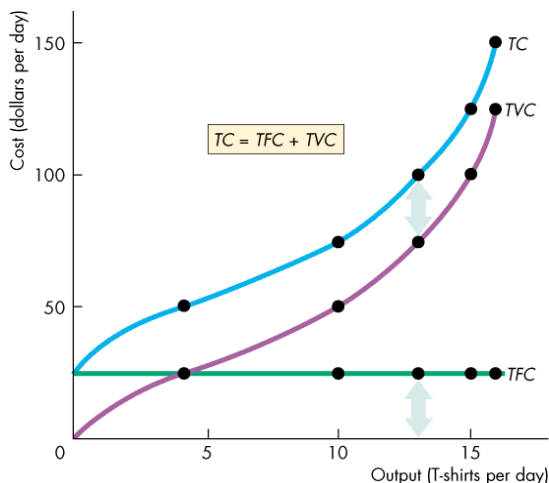


SHORT RUN COSTS

- in order to increase production through employing more labour → must increase costs
- describe the r/s between cost changes and production changes through three concepts

Total Cost = TFC + TVC

- TC: the cost of *all* resources used
- TFC: cost of firms fixed inputs → doesn't change with output
- TVC: cost of firms variable inputs → does change with output



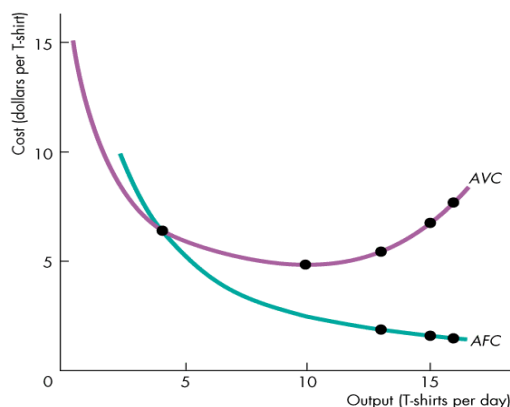
Marginal Cost = $\Delta TC / \Delta Q$

- MC: the \uparrow in TC that results from a one-unit increase in total product
- *Increasing marginal returns* → marginal cost \downarrow as output \uparrow
- *Decreasing marginal returns* → marginal cost \uparrow as output \downarrow
- **MC is at its minimum at the same output level at which marginal product is at its maximum.**
- **When marginal product is rising, marginal cost is falling.**

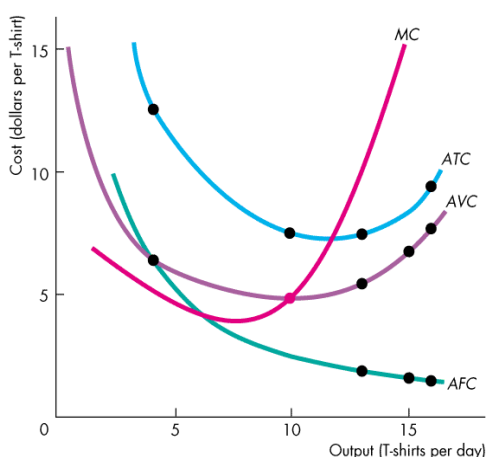
Average Cost = AFC + AVC

- Average cost measures can be derived from each of the total cost measures:

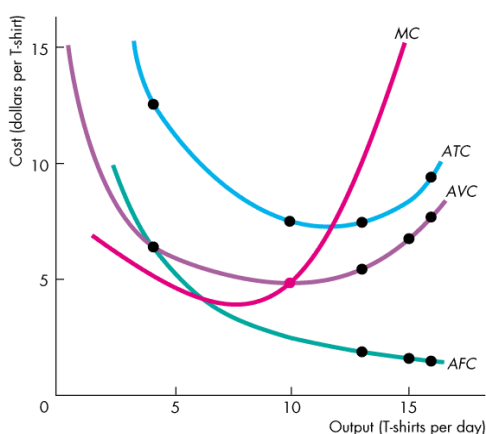
- Average fixed cost ($AFC = TFC/Q$) is total fixed cost per unit of output.
- Average variable cost ($AVC = TVC/Q$) is total variable cost per unit of output.
- Average total cost ($ATC = TC/Q$) is total cost per unit of output.
- $ATC = AFC + AVC$.
- AVC is at its minimum at the same output level at which average product is at its maximum
- When average product is rising, average variable cost is falling.



- The AFC curve shows that average fixed cost falls as output increases.
- The AVC curve is U-shaped.
- As output increases, average variable cost falls to a minimum and then increases.



- The ATC curve is also U-shaped.
- The MC curve is very special.
- The range of outputs over which AVC is *falling*, MC is *below* AVC .
- The range of outputs over which AVC is *rising*, MC is *above* AVC .
- The output at which AVC is at the minimum, MC equals AVC .



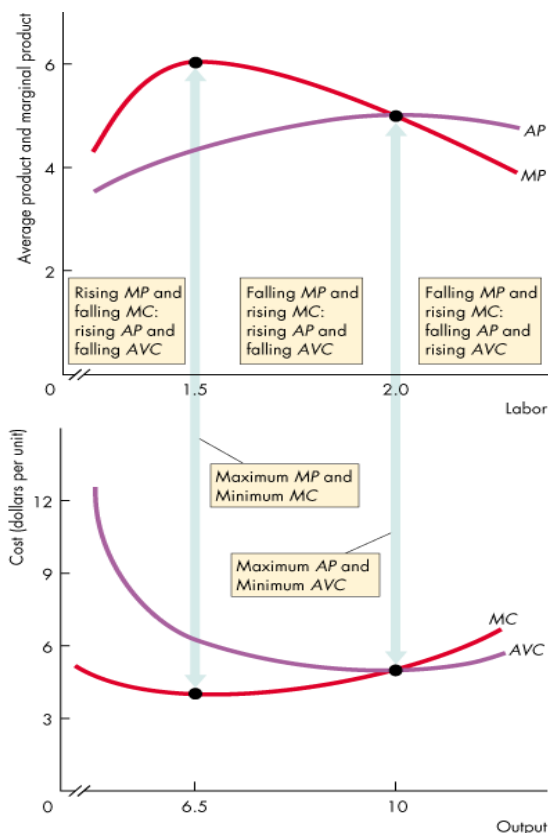
- Similarly, the range of outputs over which ATC is *falling*, - MC is *below* ATC .
- The range of outputs over which ATC is *rising*, MC is *above* ATC .
- At the minimum ATC , MC equals ATC .

U-Shape of AVC

-Initially, **marginal product exceeds average product**, which brings **rising average product** and **falling AVC**.

-Eventually, **marginal product falls below average product**, which brings **falling average product** and **rising AVC**.

-The *ATC* curve is U-shaped for the same reasons. In addition, *ATC* falls at low output levels because *AFC* is falling steeply.



The shapes of a firm's cost curves are determined by the technology it uses:

■ *MC* is at its minimum at the same output level at which marginal product is at its maximum.

■ When marginal product is rising, marginal cost is falling.

■ *AVC* is at its minimum at the same output level at which average product is at its maximum.

■ When average product is rising, average variable cost is falling.

Shift in Cost Curves

– Position of a firm's cost curve depends on:

1. **Technology:** increase in productivity → shifts avg. and marginal product curves UPWARD and avg. and marginal cost curves DOWNWARD

2. **Prices of FOP:**

(a) increase in *fixed costs* → shifts *TC* and *ATC* curves UPWARD but does not shift *MC* curve

(b) increase in *variable costs* → shifts *TC*, *ATC* and *MC* curves UPWARD

LONG RUN COSTS

– In LR, all inputs and costs are *variable*, however:

– **sunk cost:** a cost incurred that cannot be changed * irrelevant to current decisions

The Production Function

– Behaviour of LR costs depends upon a firm's production function

– a firm's *production function*:

= r/s between the maximum output attainable + (the quantities of capital + labour)

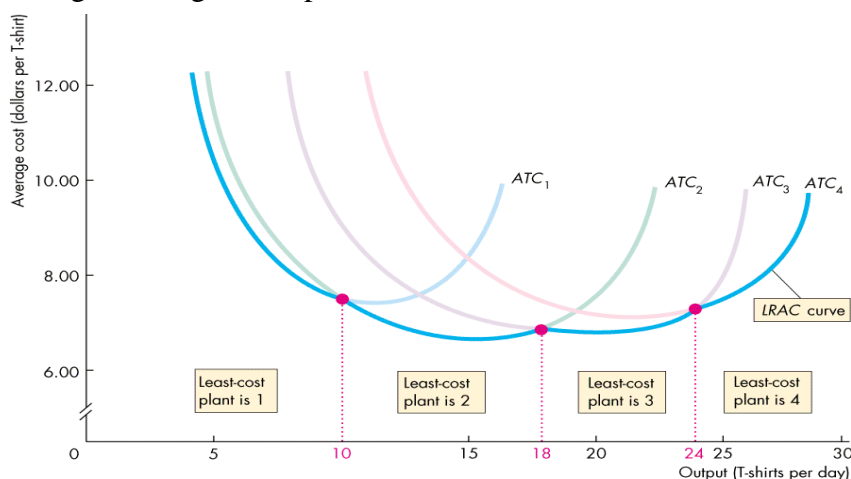
Diminishing Marginal Product of Capital

Marginal Product of Capital: the ↑ in output resulting from a one-unit ↑ in the amount of capital employed, given labour is held constant

- Firm's production function exhibits diminishing marginal returns for both **labour** (for a given plant) and **capital** (for a quantity of labour)

Long-Run Average Cost Curve

- LRAC curve: the r/s between the lowest attainable avg. total cost and output, where both the plant and labour are varied
- Used as a planning technique → identifies the plant which minimises the cost of producing a given range of output

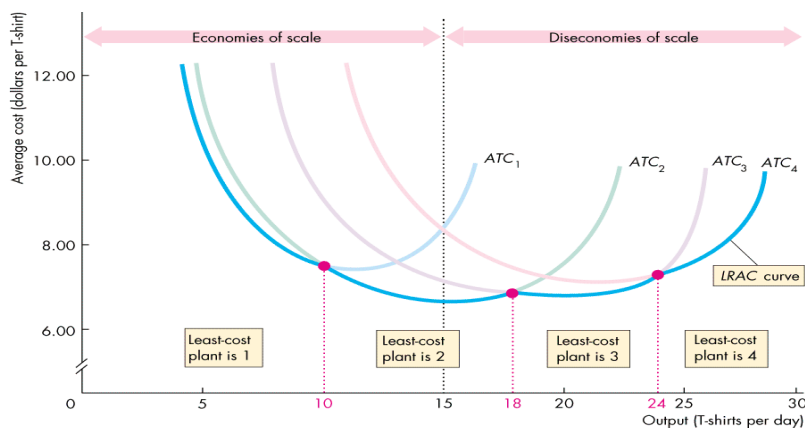


Economies and Diseconomies of Scale

Economies of Scale: features of a firm's technology that lead to falling LRAC as output increases

Diseconomies of Scale: features of a firm's technology that lead to rising LRAC as output increases

Constant Returns to Scale: features of a firm's technology that lead to constant LRAC as output increases



Minimum Efficient Scale is the smallest quantity of output at which the long-run average cost reaches its lowest level.

- firm experiences economies of scale up to a certain level of output
- beyond this threshold, firm moves to either constant returns to scale or diseconomies of scale

If the long-run average cost curve is U-shaped, the minimum point identifies the minimum efficient scale output level.

Lecture 4-

WHAT IS PERFECT COMPETITION?

Characteristics

- infinite no. of sellers
- price takers (homogeneous products)
- ease of entry (free entry/exit)

Price Takers

Price taker: a firm that cannot influence the price of a good or service → must take equilibrium price, set externally

- ↑ price = no demand
- ↓ price = infinite demand
- each firm's output is a *perfect substitute* for that of another firm ** demand is *perfectly elastic*

N.B: as you sell more, the price should fall ** curve is usually downwards sloping (like demand curve)

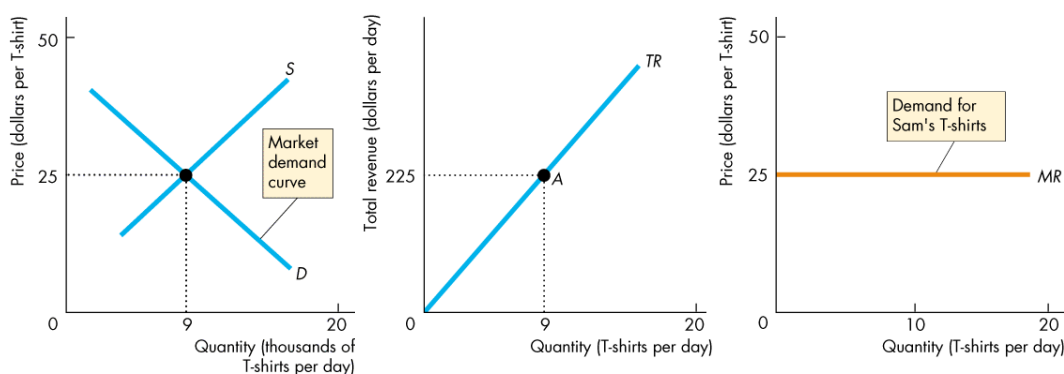
The goal of each firm is to maximise *economic profit*, which equals *total revenue* minus *total cost*. Total cost is the *opportunity cost* of production, which includes *normal profit*.

A firm's **total revenue** ($TR = P \times Q$) equals price, P , multiplied by quantity sold, Q .

A firm's **marginal revenue** ($MR = DTR / DQ$) is the change in total revenue that results from a one-unit increase in the quantity sold.

Economic Profit and Revenue

- Total Revenue = $P \times Q$
- Marginal Revenue = $\frac{\Delta TR}{\Delta Q}$ → where Q = one-unit increase in the quantity sold
- MR curve = Demand curve = PRICE



(a) T-shirt market

(b) Sam's total revenue

(c) Sam's marginal revenue

(a) Shows that **market demand** and **market supply** determine the **market price** that the firm must take.

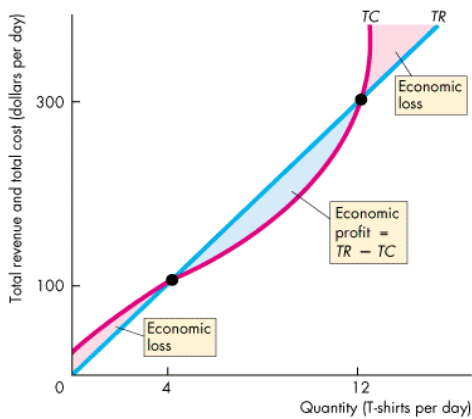
(b) Shows the firm's **total revenue curve (TR)**.

(c) Shows the **marginal revenue curve (MR)**. The firm can sell any quantity it chooses at the market price, so marginal revenue equals price and the demand curve for the firm's product is horizontal at the market price.

THE FIRM'S OUTPUT DECISION

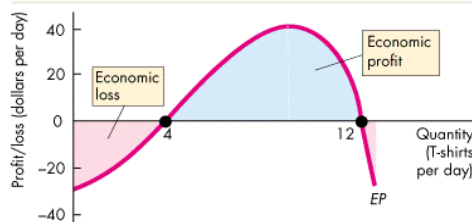
Profit-Maximising Output

-Look at total revenue and total cost curves to determine profit-maximising output



-Part (a) shows the total revenue (TR) curve & total cost (TC) curve

(a) Revenue and cost



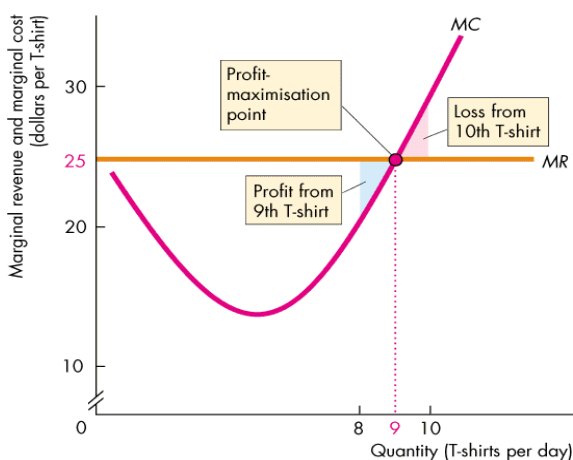
-Total revenue minus total cost is economic profit (or loss), shown by the curve *EP* in part (b).

(b) Economic profit and loss

Marginal Analysis

-The firm can use marginal analysis to determine the profit-maximising output.

-Because *MR* is constant and *MC*, eventually increases as output increases, profit is maximised by producing the output at which $MR = MC$



-If $MR > MC$, economic **profit increases** if output - increases.

-If $MR < MC$, economic **profit decreases** if output - increases.

-The **profit maximizing level of output** is that where $MR = MC$.

Temporary Shutdown Decision

- firm's making an economic loss must decide whether to exit or stay in the market
- if the stay in the market, must decide whether to:
 - (a) produce something
 - (b) shut down temporarily

N.B: the decision will be that, which minimises the firm's loss

Loss Comparison

- Economic Loss = - Profit

$$= TC - TR$$

$$= TFC + TVC - TR$$

$$= \text{TFC} + \text{AVC} \times Q - P \times Q$$

$$= \text{TFC} + (\text{AVC} - P) \times Q$$

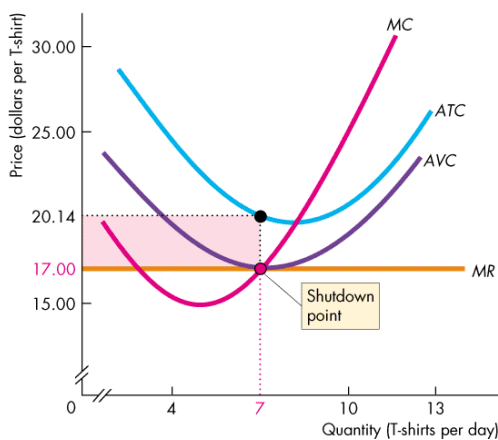
- if a firm does shut down, $Q = 0$ and TFC must still be paid ** eco loss = TFC

N.B:

1. the firm won't incur a cost > TFC
2. no rational firm will produce when $P < \text{AVC} \rightarrow Q = 0$
3. a firm may produce when $P > \text{AVC} \rightarrow Q > 0$

The Shutdown Point: the price and quantity at which the firm is indifferent between producing and shutting down

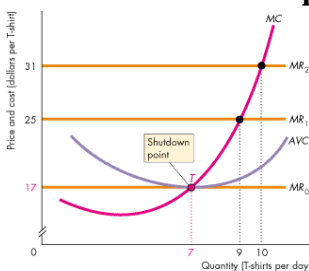
- point where AVC curve is at its minimum & where MC curve cuts the AVC curve
- regardless the firm will incur a loss = TFC



OUTPUT, PRICE AND PROFIT IN THE SHORT-RUN

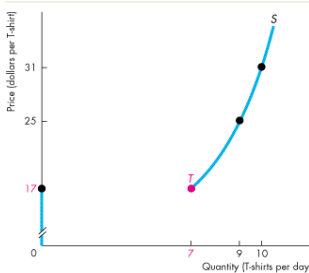
Market Supply in the Short-Run

Short-Run Market Supply Curve (*perfectly elastic*): shows the quantity supplied by all firms in the market at each price, given each firm's plant and the number of firms remains the same



- quantity supplied by market at any given price = the sum of quantities supplied by all firms at that price
- at the shutdown price \rightarrow some firms will produce the shutdown quantity, others will produce zero

(a) Sam's marginal cost and average variable cost



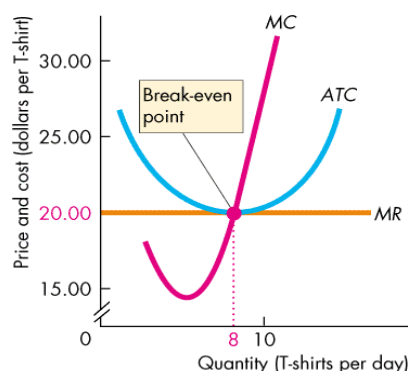
(b) Sam's short-run supply curve

A Change in Demand

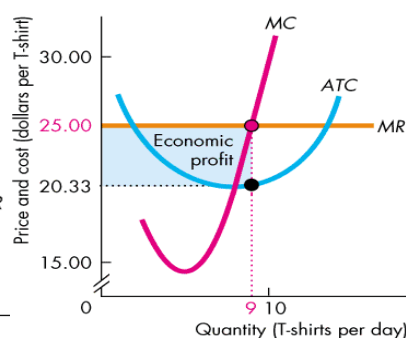
- allows us to determine whether it is best to stay open or close, depending on changes in MR \rightarrow caused by changes in demand
- \uparrow demand = rightward shift of curve \rightarrow price rises and quantity increases
- \downarrow demand = leftward shift of curve \rightarrow price falls and quantity decreases

Profits and Losses in the Short-Run

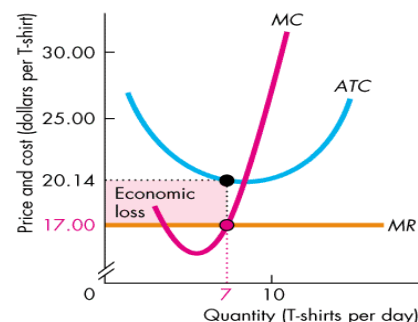
- maximum profit is not always positive economic profit
- SR → three possible outcomes: economic profit, breakeven or economic loss



(a) Break-even



(b) Economic profit



(c) Economic loss

OUTPUT, PRICE AND PROFIT IN THE LONG-RUN

- only breakeven is a long-run equilibrium because firms can enter or exit the market

Entry

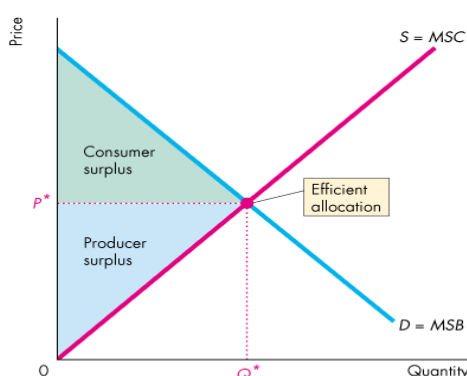
- incentive to enter as long as firms are making economic profits
- Increases market supply, decreases market price and firms make zero economic profit (LT)

Exit

- incentive to exit as long as a firm is incurring economic losses
- decreases market supply, increases market price and firms make zero economic profit (LT)
 - long run: decrease supply= increase \$= increase profits

COMPETITION AND EFFICIENCY

- Efficient resource use is determined by the choices of consumers and producers
- In competitive equilibrium, resources are used efficiently and the gains from trade are measured:



(b) A market

1. For consumers, gain is measured by **consumer surplus**: the area *below* demand, *above* price and *left* of the quantity transacted in the market
2. For producers, gain is measured by **producer surplus**: the area *above* the supply curve, *below* price and *left* of the quantity transacted in the market

-total gains from trade= consumer surplus + producer surplus

Lecture 5-

MONOPOLY AND ITS REGULATION

Monopoly and How It Arises

Monopoly: A market that produces a g/s for which there is *no close substitute* and where there is only *one* supplier who is protected from competition by barriers to entry **e.g. Australia Post**

- There are three main barriers to entry:
 1. Natural barrier to entry

2. Ownership barrier to entry
3. Legal barrier to entry

Natural Barrier to Entry

- **Natural monopoly:** an industry in which economies of scale enable one firm to supply the entire market at the lowest possible cost
- There is usually also minimal room/ability for a competitor

Ownership Barrier to Entry

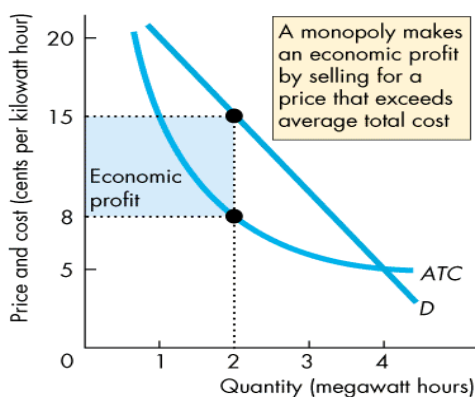
- occurs if one firm owns a significant portion of a key resource e.g. oil rich nations in Middle East, Foxtel and paid TV
- key targets for ACC

Legal Barrier to Entry

- **Legal monopoly:** a market in which competition and entry are restricted by the granting of:
 - (a) public franchise e.g. Australia Post
 - (b) govt. license e.g. controls entry in professions such as law, medicine, dentistry
 - (c) patent or copyright e.g. pharmaceuticals

A Monopoly's Goal and Constraints

Goal: maximise economic profit = TR – TC

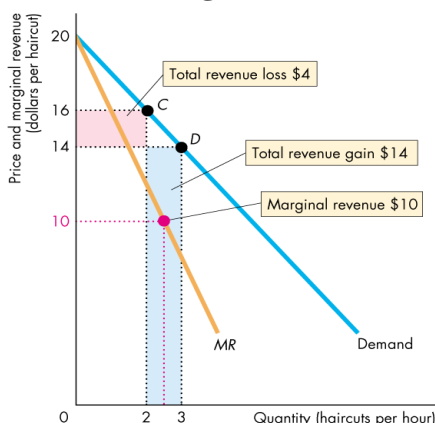


Constraints:

1. **Market Demand** – since there is only one seller, demand curve = market demand curve & slopes downwards because there are no close substitutes
2. **Technology and Cost** – due to economies of scale, has high fixed cost of its plant & low marginal cost
 - greater the quantity produced = greater spread of FC, which lowers its avg. TC of production

(b) Economic profit

Price and Marginal Revenue



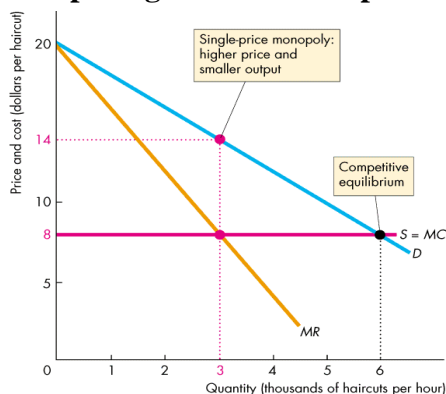
– for a single-price monopoly → $MR < P$ (at each level of output)

Maximising Economic Profit

- as output increases, so do economic profits until it reaches a maximum, after which profits begin to decline
- it is therefore important to monitor MR → when $MR < MC$ it is time to stop production

Monopoly and Competition Compared

Comparing Price and Output

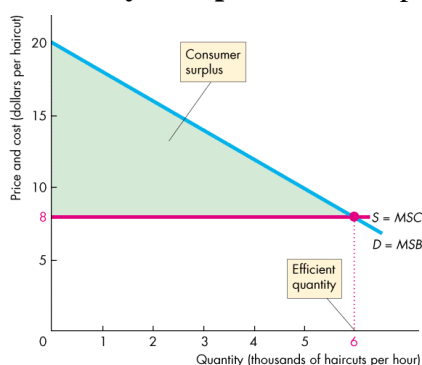


-shows the price and quantity produced in competitive equilibrium.

-A single-price monopoly produces 3,000 haircuts an hour and sells them at \$14 a haircut.

-Compared with competition, monopoly produces a smaller output and charges a higher price.

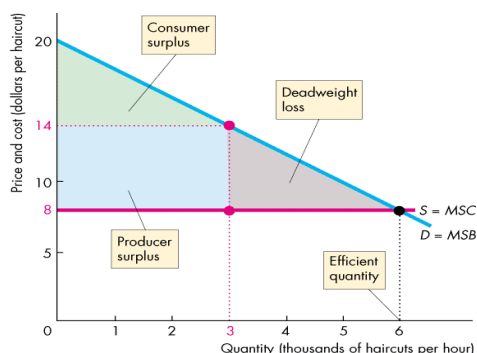
Efficiency Comparison - competitive equilibrium is efficient when $D = S$



-Under competition; total surplus is maximised and the quantity produced is efficient

(a) Competitive market

Inefficient Monopoly



(b) Monopoly

- when D is greater than S = deadweight loss

Price Discrimination

- to price discriminate, a monopoly must:
 1. identify and separate different buyer types
 2. sell a product that cannot be resold
- this allows a firm to increase its profits → by converting consumer surplus into profit

Perfect Price Discrimination: occurs if a firm is able to sell each unit of output for the highest price anyone is willing to pay

→ $MR = \text{price \& demand curve} = MR \text{ curve}$

→ profit-maximising output increases to the quantity at which $PRICE = MC$

→ producer surplus = maximised, consumer surplus = 0 ** all redistributed surplus is producer surplus

Gains from Monopoly

1. incentives to innovate
2. economies of scale and economies of scope → more you produce, the more R & D that can be undertaken, which allows for expansion

MONOPOLY POLICY ISSUES

Efficiency Regulation of a Natural Monopoly

- the quantity produced in a monopoly is less than the efficient quantity
- inefficient production = price gauging
- so government regulates this by;

Marginal Cost Pricing Rule: a regulation that sets the price equal to the monopoly's marginal cost → however this will lead to the firm making a LOSS, it is unsustainable

Second-Best Regulation of a Natural Monopoly; cannot always regulate to achieve an efficient outcome but can regulate to avoid an economic loss by:

1. Average Cost Pricing

- sets the price equal to ATC
- production quantity = where ATC curve cuts the demand curve
- monopoly makes 0 profits= breaks even

2. Government Subsidy

- a direct payment to a firm equal to its economic loss
- paid through taxation but taxes themselves generate deadweight loss

N.B: choice between two options is dependent on the relative size of their deadweight losses → the smaller deadweight loss is ✱ the second best solution

Price Cap Regulation- *practical regulation that economists favor today*

- IS A PRICE CEILING e.g. Australia Post stamp price
- Specifies the highest price that the firm is permitted to charge.
- Eliminates incentive to exaggerate costs
- Gives incentive to operate efficiently and reduce cost over time

MONOPOLISTIC COMPETITION

Monopolistic Competition: is a market structure where a large number of firms compete by producing differentiated products. They compete on product quality, price and marketing, and there is free entry and exit into the industry.

Large Number of Firms

- each firm has a small market share ✱ limited power
- each firm is sensitive to the avg. market price e.g. jeans brands → Lee, Levis, Ksubi, Diesel
- collusion is impossible

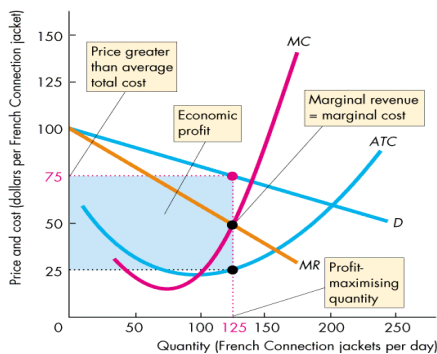
Entry and Exit

- no barriers ✱ a firm cannot make economic profit in the long run
- e.g. producers of audio/video equipment, clothing, jewellery and computers operate in a monopolistically competitive enviro.

The Firm's Short-Run Output and Price Decision

- firm in monopolistic competition operates like a single-price monopoly
- produce the quantity at which $MR=MC$ → sells this quantity for the highest possible price
- earns economic profit when $P>ATC$ (difference b/w price and $ATC \times$ quantity)

A Firm's Economic Profit in the Short-Run



- economic loss in short run; the profit-maximising quantity, $P < ATC$ and the firm incurs an economic loss.

Long Run: Zero Economic Profit

- PROFIT = zero
- PRICE = ATC
- Entry continues as long as $P > ATC$
- As firms enter \rightarrow existing firms lose market share \rightarrow demand $\downarrow \rightarrow$ demand curve shifts leftward
- \downarrow demand \rightarrow decreases the quantity at which $MR = MC \rightarrow$ lowers the maximum price a firm can charge
- price and quantity fall until $P = ATC$, where there is zero economic profit

Monopolistic Competition and Perfect Competition

- Two key differences:
 1. Excess Capacity
 2. Mark-up

1. Excess Capacity

Monopolistic Competition

- excess capacity arises \rightarrow when a firm produces less than the quantity at which ATC is a minimum
- quantity produced is below that of *productive efficiency* $P > \min. ATC$
- monopolistic competitive firms operate with excess capacity in LR equilibrium and a mark-up

Perfect Competition

- has no excess capacity and no mark-up \rightarrow driven by their perfectly elastic demand curve

2. Mark-up

- the amount by which a firm's price exceeds its marginal cost
- there is a need for *allocative efficiency* \rightarrow where $P > MC$
- when price is well above MC = large mark-up ** inefficiency

Lecture 6-

OLIGOPOLY GAMES AND STRATEGIES

Oligopoly: a market structure in which natural or legal barriers prevent the entry of new firms, as a result there are a small number of large firms, which compete.

- Small Number of Firms

- the firms are interdependent (because there are only a small number) ** incentive to collude
- *interdependence*- each firm's profits depends on the actions of other firms
- there is incentive to form a *cartel*, which is not only illegal but can often break down e.g. **Petroleum, Visa and Amcor**

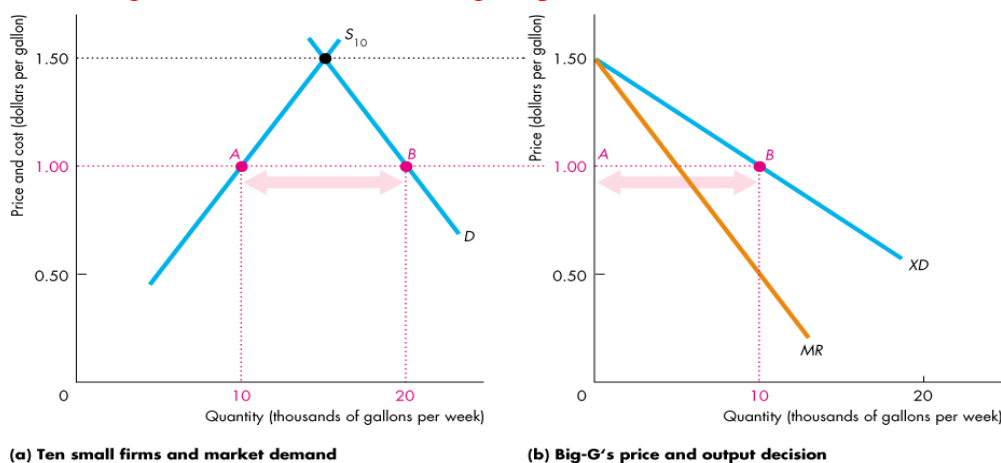
TWO TRADITIONAL OLIGOPOLY MODELS

Kinked Demand Curve Model

- Key Assumption: if a firm raises its price, its competitors will not follow but if it lowers its price all of its competitors will follow
- A firm therefore has two different demand curves and associated MR curves
- Profit Maximisation → where $MC = MR$
- **N.B:** even if MC changes, the price will not change

Dominant Firm Oligopoly

- there is one firm that has a significant cost advantage over other, smaller competing firms
- large firm operates as a monopoly → setting its price & output to maximise profits
- smaller firms act as perfect competitors → take market price set by dominant firm
- e.g. in a rural area → one large supermarket and lots of corner stores



OLIGOPOLY GAMES

Game Theory: a tool for studying strategic behaviour; behaviour which takes into account the expected behaviour of others and the mutual recognition of interdependence

Prisoners Dilemma-

Rules: The rules describe the setting of the game, the actions the players may take, and the consequences of those actions. In the Prisoners' Dilemma game, two prisoners (Art and Bob) have been caught committing a petty crime. Each is held in a separate cell and hence they cannot communicate with each other. Each is told that both are suspected of committing a more serious crime. If one of them confesses, he will get a 1-year sentence for cooperating while his accomplice gets a 10-year sentence for both crimes. If both confess to the more serious crime, each receives 3 years in jail for both crimes. If neither confesses, each receives a 2-year sentence for the minor crime only.

Strategies are all the possible actions of each player.

Art and Bob each have two possible actions:

1. Confess to the larger crime.
2. Deny having committed the larger crime.

With two players and two actions for each player, there are four possible outcomes:

1. Both confess.
2. Both deny.
- 3 & 4. One confesses; one denies

Payoffs: Each prisoner can work out what happens to him—can work out his payoff—in each of the four possible outcomes; we can tabulate these outcomes in a payoff matrix; a table that shows the payoffs for every possible action by each player for every possible action by the other player.

		Art's strategies	
		Confess	Deny
Bob's strategies	Confess	3 years / 3 years	10 years / 1 year
	Deny	1 year / 10 years	2 years / 2 years

Outcomes

- **Nash Equilibrium:** a set of strategies where no player can do better by changing their actions given what the other players are doing → the strategies are ultimately stable
- There may be one, none or many nash equilibriums → it depends upon the formulation of the game
- **Dominant Strategy:** a strategy which is best no matter what the other player does

TRADE PRACTICES LAW- every country has anti-trust law= preventing monopolies and encouraging market D

1. National Competition Policy Act (1995)

- Established by the ACCC

2. Competition and Consumer Act (2010)

- Aim: to achieve allocative efficiency and ensure social interest
- Covers all activities that restrict competition; eg: price fixing, boycotts, exclusive dealing
- These activities may not necessarily be banned, if it is in social interest
- Restrains anti-competitive behaviour

Primary Functions of ACCC

- Enforcement: bringing legal proceedings for contravention of trade practices law.
- Authorisations: granting authorisations/exceptions that otherwise might be in breach of the TPA.
- Research: undertake research, investigations, disseminate information and engage in public consultation about trade practices issues.

Mergers & Acquisitions

Section 50: Mergers and acquisitions are prohibited if they have the likely effect of substantially lessening competition in the market; they have potential of decreasing competition and so they are always examined by the ACCC

But competition is not clearly defined in the TPA. However, it has been clarified this somewhat by court judgements so we may think of competition as:

- A mechanism to discover the kinds of goods and service the community wants and the manner in which they are supplied.
- A mechanism for the enforcement of business decisions.

When examining a *merger or acquisition* the ACCC must consider:

- The level of import competition.
- Barriers to entry in the market.
- The level of concentration in the market.
- The extent to which substitutes are, or are likely to be, available.
- The degree of countervailing power in the market.
- The likelihood that the acquisition would result in the acquirer being able to significantly and sustainably increase prices or profit margins.