H2 Economics (9570)

Theme 2: Markets — Lecture Notes

Based on A-Level YouTube Resources

2.1 Price Mechanism and its Applications

Syllabus Learning Outcomes

By the end of this topic, you should be able to:

- Explain how the price mechanism allocates scarce resources through signalling, incentive, and rationing functions
- Analyse demand and supply, including market demand/supply as summations
- Distinguish between movement along and shifts in demand/supply curves
- Determine equilibrium price and quantity through demand-supply interaction
- Explain how changes in demand and supply affect equilibrium, consumer expenditure, producer revenue, consumer surplus, and producer surplus
- Apply PED, YED, and XED to analyse market outcomes
- Evaluate government intervention in markets (taxes, subsidies, price controls, quantity controls)
- Analyse how price elasticities affect the impact of government intervention

The Price Mechanism

The **price mechanism** is the system in a free market economy whereby prices are determined by the interaction of demand and supply. It answers the three fundamental economic questions: **what to produce**, **how to produce**, and **for whom to produce** (source: Andre Lim, A Level Economics).

The price mechanism performs three essential functions:

1. **Signalling Function**: Prices convey information about scarcity and abundance. When a price rises, it signals that the good is becoming scarcer or more sought after. Economic agents use these price signals to make decisions without needing to know the underlying causes.
2. **Incentive Function**: Price changes provide incentives for consumers and producers to alter their behaviour. High prices incentivise producers to increase supply (via higher profits) and consumers to demand less. Low prices have the opposite effect.
3. **Rationing Function**: When demand exceeds supply, the rising price rations the scarce good among competing buyers. Those willing and able to pay the higher price obtain the good — this ensures the good goes to those who value it most.

Example

Singapore Housing Market Consider the Singapore housing market. When demand for housing exceeds supply (e.g., due to population growth), prices rise. This signals to developers that there is profitable opportunity in building more housing (signalling). The higher prices incentivise developers to construct more units while encouraging buyers to consider smaller units or alternative locations (incentive). Finally, the higher prices ration housing to those who can afford it (rationing).

Demand and Supply Analysis

Market demand is the total quantity of a good that all consumers in a market are willing and able to buy at various prices over a given period. It is derived by horizontally adding all individual demand curves.

Market supply is the total quantity of a good that all producers in a market are willing and able to sell at various prices over a given period. It is derived by horizontally adding all individual supply curves.

Movement Along vs. Shift in Curves

A critical distinction in economics (common exam pitfall):

- **Movement along the demand/supply curve**: Occurs when the *price of the good itself* changes. This is a change in **quantity demanded** or **quantity supplied**.
- **Shift in the demand/supply curve**: Occurs when any *non-price determinant* changes. This is a change in **demand** or **supply**.

Warning

Common Misconception Students often confuse movements along with shifts. Remember: **Only a change in the good's own price causes a movement along the curve. All other changes cause shifts.**

Non-Price Determinants of Demand

1. **Income**: Normal goods (demand increases with income) vs. Inferior goods (demand decreases with income)
2. **Prices of related goods**: Substitutes (rise in P_x increases demand for Y) vs. Complements (rise in P_x decreases demand for Y)
3. **Tastes and preferences**
4. **Expectations**: Expected future prices, expected future income
5. **Number of buyers**
6. **Government policies**: Taxes (reduce demand), subsidies (increase demand)

Non-Price Determinants of Supply

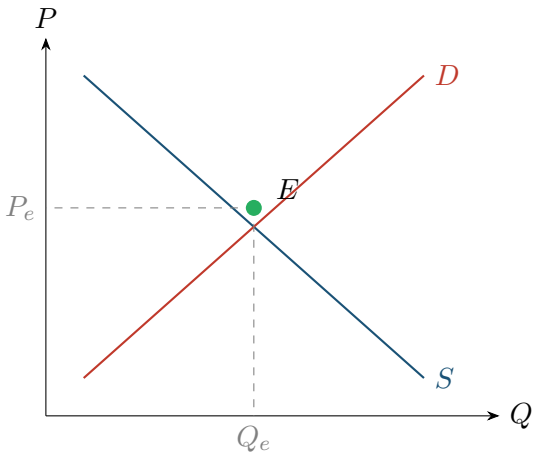
1. **Costs of production**: Input prices, wages, rent
2. **Technology**: Improved technology reduces costs, increasing supply
3. **Number of sellers**

4. **Government policies**: Taxes (reduce supply), subsidies (increase supply)
5. **Expectations**: Expected future prices
6. **Natural conditions**: Weather, disasters

Equilibrium Analysis

Equilibrium occurs where the demand curve intersects the supply curve. At this point:

- The quantity demanded equals the quantity supplied
- There is no tendency for price to change
- The market *clears* — all willing buyers and sellers are matched



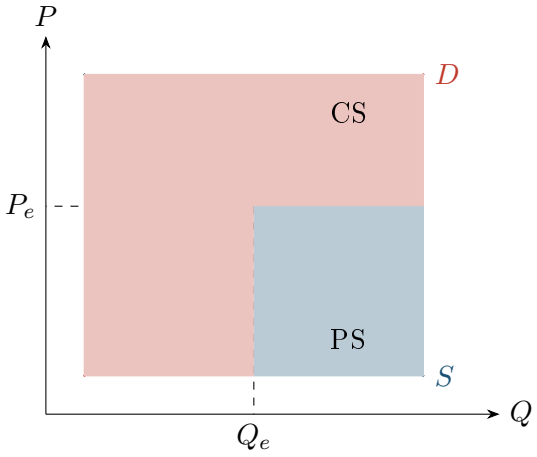
Changes in Equilibrium

When demand or supply shifts, equilibrium adjusts:

Change	Effect on P_e	Effect on Q_e
Increase in Demand	Increases	Increases
Decrease in Demand	Decreases	Decreases
Increase in Supply	Decreases	Increases
Decrease in Supply	Increases	Decreases

Consumer and Producer Surplus

As explained by Melvin Koh: *Consumer surplus is the difference between what consumers are willing and able to pay for a good versus the amount actually paid. Producer surplus is the difference between the amount producers receive and their minimum acceptable price.*



Exam Tip

Allocative Efficiency According to Melvin Koh, allocative efficiency (AE) is achieved when **CS + PS is maximized**, which occurs at equilibrium where $D = S$. This is the socially optimal output. When the market achieves AE, social welfare is maximized.

Elasticities

Price Elasticity of Demand (PED)

$$PED = \frac{\%\Delta Q_d}{\%\Delta P}$$

PED Value	Classification	Description
$PED = 0$	Perfectly Inelastic	Quantity demanded unchanged
$0 < PED < 1$	Inelastic	Proportionately smaller change in Q_d
$PED = 1$	Unit Elastic	Proportionately equal changes
$1 < PED < \infty$	Elastic	Proportionately larger change in Q_d
$PED = \infty$	Perfectly Elastic	Any price increase eliminates all demand

Exam Tip

Determinants of PED

1. **Availability of substitutes**: More substitutes → more elastic
2. **Proportion of income**: Higher proportion → more elastic
3. **Necessity vs. luxury**: Necessities → inelastic; Luxuries → elastic
4. **Time period**: Long run → more elastic (more adjustment time)

Applications of PED

1. **Government tax revenue**: Whether a tax on producers raises more revenue depends on PED. If demand is inelastic, consumers bear most of the tax burden.
2. **Producer pricing decisions**: Firms facing elastic demand must be cautious about raising prices.
3. **Incidence of taxation**: The party (consumers or producers) who bears the larger burden of a tax is less responsive to price changes.

Income Elasticity of Demand (YED)

$$YED = \frac{\%\Delta Q_d}{\%\Delta Y}$$

YED Value	Classification	Example
$YED > 1$	Normal Good (Income Elastic)	Luxury cars, international travel
$0 < YED < 1$	Normal Good (Income Inelastic)	Basic food, essential clothing
$YED < 0$	Inferior Good	Instant noodles, public transport

Cross Elasticity of Demand (XED)

$$XED = \frac{\%\Delta Q_{dX}}{\%\Delta P_Y}$$

XED Value	Relationship	Example
$XED > 0$	Substitutes	Tea and coffee
$XED < 0$	Complements	Cars and petrol
$XED = 0$	Unrelated	Rice and smartphones

Price Elasticity of Supply (PES)

$$PES = \frac{\%\Delta Q_s}{\%\Delta P}$$

Key determinant: **Time period**. Supply is more elastic in the long run as producers can adjust their production methods.

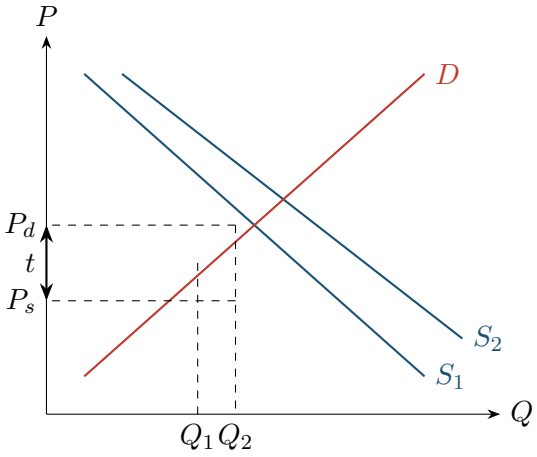
Government Intervention in Markets

Government intervention in markets takes four main forms:

1. **Taxes**: Levied on goods/services to raise price or reduce consumption
2. **Subsidies**: Payments to producers/consumers to lower price and increase consumption
3. **Price Controls**: Maximum prices (price ceilings) or minimum prices (price floors)
4. **Quantity Controls (Quotas)**: Legal limits on quantity that can be bought/sold

Taxes

As explained by Andre Lim: *The idea behind taxes is similar to that of taxes used in general by governments, but this one is targeted towards a certain market in either increasing the PMC or MPC or reducing the MPB or PMB.*



When a tax is imposed:

- Supply shifts left (tax on producers)
- Equilibrium quantity decreases
- Price paid by consumers rises (P_d)
- Price received by producers falls (P_s)
- Tax revenue = $t \times Q_2$
- Deadweight loss = welfare loss from reduced quantity

Exam Tip

Effectiveness Depends on PED Andre Lim notes: *Its effectiveness depends on the price elasticity of demand. For cigarettes, which are price inelastic, an increase in price results in a less than proportional fall in quantity demanded. Hence, you may require a larger tax to bring the level of consumption down.*

Subsidies

A **subsidy** is the opposite of a tax — it lowers production costs, shifting supply right. The effect:

- Price paid by consumers falls
- Price received by producers rises (by less than the subsidy)
- Equilibrium quantity increases
- Government expenditure = subsidy × quantity
- Deadweight loss from overconsumption

Price Ceilings (Maximum Prices)

When $P_{max} < P_e$:

- Quantity supplied falls below equilibrium
- Quantity demanded exceeds supply → shortage
- Consumer surplus may decrease (lower price but difficulty obtaining good)
- Black markets may emerge at higher prices

Price Floors (Minimum Prices)

When $P_{min} > P_e$:

- Quantity supplied exceeds quantity demanded → surplus
- Producer surplus may increase initially, but unsold goods lead to losses
- Government may need to purchase surplus

Quotas (Quantity Controls)

A **quota** sets a maximum quantity that can be sold. Effects:

- Supply is artificially restricted
- Price paid by consumers rises above equilibrium
- Price received by producers falls below equilibrium
- The difference ($P_d - P_s$) is **quota rent** — earned by quota license holders
- Deadweight loss from restricted output

2.3 Microeconomic Objectives and Policies

Syllabus Learning Outcomes

- Explain governments' microeconomic objectives: efficiency and equity
- Define and calculate deadweight loss
- Explain conditions for social optimum (MSB = MSC)
- Identify causes of market failure
- Evaluate policy measures to address market failure
- Analyse government failure and unintended consequences

Governments' Microeconomic Objectives

Two primary objectives:

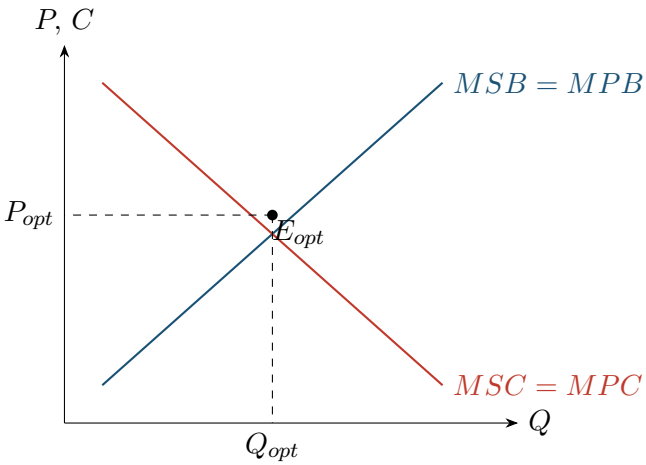
1. **Efficiency**: Allocating resources to maximise social welfare
2. **Equity**: Ensuring fair distribution of essential goods and services

Warning

Key Distinction According to OVERMUGGED, inequity is **not** considered market failure — it's a distributional issue, not an allocative one. Market failure is specifically about efficiency.

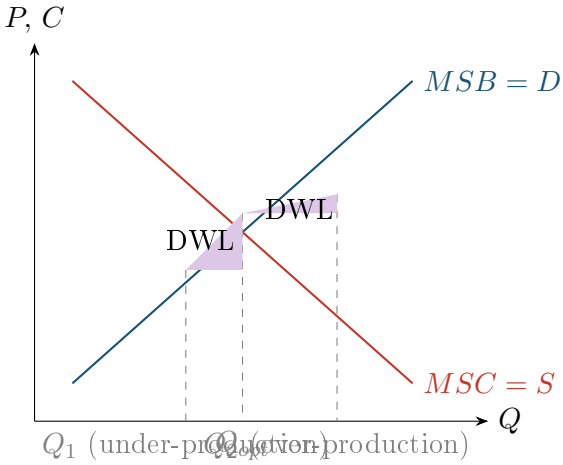
Efficiency and the Social Optimum

The **social optimum** is the output level where **MSB = MSC**, maximising society's total welfare.



Deadweight Loss

Deadweight loss is the reduction in net benefit to society when output is not at the social optimum.



Why DWL occurs:

- **Under-production** ($Q < Q_{opt}$): MSB > MSC — society loses potential benefits
- **Over-production** ($Q > Q_{opt}$): MSC > MSB — society incurs costs exceeding benefits

Equity

Equity is fairness in the distribution of essential goods and services. Two types:

1. **Horizontal equity**: Equal treatment of equals
2. **Vertical equity**: Unequal treatment of unequals

Government interventions for equity may reduce efficiency — there is often a trade-off.

Market Failure and its Causes

OVERMUGGED explains: *Market failure is when the free market is unable to allocate resources efficiently, resulting in either under-production or over-production of goods and services.*

The 2027 syllabus identifies five causes:

1. Non-provision of public goods
2. Externalities
3. Information failure (asymmetric information)
4. Immobility of factors of production
5. Market dominance

Public Goods

Public goods have two characteristics:

- **Non-rivalry**: One person's consumption doesn't reduce availability for others
- **Non-excludability**: Cannot prevent non-payers from consuming

Additionally, the syllabus requires awareness of **non-rejectability** — the inability to refuse a public good (e.g., national defence protects everyone whether they want it or not).

Warning

Free-rider Problem Due to non-excludability, people can enjoy the good without paying (free-rider problem). No profit incentive for private firms → under-production or non-production.

Externalities

Externality is a third-party effect where an economic activity imposes costs or benefits on others who are not part of the transaction.

Type	Definition	Example
Negative	Production/consumption imposes costs on others	Pollution, smoking, traffic congestion
Positive	Production/consumption provides benefits to others	Education, vaccinations, R&D

Negative Externalities: MSC > MPC. Over-production ($Q_m > Q_{opt}$). DWL from too much production.

Positive Externalities: MSB > MPB. Under-production ($Q_m < Q_{opt}$). DWL from under-production.

Exam Tip

Two-Diagram Approach The syllabus states: *A two-diagram approach will suffice – showing that MSC is higher than MPC for negative externalities, and MSB is higher than MPB for positive externalities.*

Information Failure (Asymmetric Information)

Asymmetric information is when one party has more/better information than the other. Two key problems:

1. **Adverse Selection**: Occurs *before* transaction — one party selects based on private information.
    - *Example*: Used car market — sellers know car quality; buyers don't (lemon problem).
2. **Moral Hazard**: Occurs *after* transaction — one party changes behaviour because the other cannot observe it.
    - *Example*: Insurance — insured people take more risks because they don't bear the full cost.

The syllabus notes that diagrammatic analysis of these is **not required**.

Immobility of Factors of Production

Factor immobility is the inability/unwillingness of factors to move between uses or locations. Types:

1. **Geographical immobility**: Workers cannot move due to housing, family
2. **Occupational immobility**: Workers lack skills for different jobs
3. **Structural immobility**: Mismatch between available jobs and workforce skills

Result: Unemployment or underemployment, resources not allocated to highest-value uses.

Market Dominance

Market dominance is when a firm or group of firms control a large share of the market, allowing them to influence prices and output.

When firms have market power:

- They can set prices above marginal cost (monopoly power)
- Output is restricted below socially optimal level
- Consumers face higher prices and less choice
- Deadweight loss results

Summary of Market Failure Causes

Cause	Problem	Policy Response
Public goods	Free-rider problem; under-production	Government provision, taxes
Negative externalities	Over-production (MSC > MPB)	Taxes, regulations, tradable permits
Positive externalities	Under-production (MSB > MPB)	Subsidies, direct provision
Asymmetric info	Adverse selection, moral hazard	Disclosure requirements, regulations
Factor immobility	Unemployment, misallocation	Retraining, relocation support
Market dominance	Monopoly power, restricted output	Competition policy, price caps

Microeconomic Policies

Policy Measures

1. **Taxes and Subsidies**
   - Taxes on goods with negative externalities (e.g., carbon tax, tobacco/alcohol duties)
   - Subsidies for goods with positive externalities (e.g., education subsidies)
2. **Quotas and Tradable Permits**
   - Quotas: Direct quantity limits (e.g., fishing quotas)
   - Tradable permits: Market-based approach (e.g., carbon emissions trading)
3. **Joint and Direct Provision**
   - Joint provision: Government provides alongside private sector
   - Direct provision: Government fully provides (e.g., national defence)
4. **Rules and Regulations**
   - Minimum quality standards
   - Mandatory disclosures (to address information failure)
   - Competition laws (to address market dominance)
5. **Public Education**
   - Campaigns to inform consumers (e.g., health warnings)
   - Addresses information failure

Effectiveness of Policy Measures

Policy	Advantages	Limitations
Taxes	Revenue generation; incentivises reduction	May be regressive; difficult to set optimal rate
Subsidies	Encourages consumption/production	Expensive; may lead to dependency
Quotas	Simple to implement	Inefficient; no incentive to reduce further
Tradable permits	Cost-effective; market-driven	Requires monitoring; complex to set up
Direct provision	Ensures provision of public goods	May be inefficient; requires funding
Regulations	Direct control	May stifle innovation; enforcement costs

Government Failure

Government failure occurs when government intervention fails to improve market outcomes. May occur due to:

- Inaccurate information (government doesn't know true MSB/MSC)
- Unintended consequences
- Administrative costs
- Political considerations overriding economic efficiency
- Regulatory capture (regulated firms influence regulators)

Cognitive Biases and Nudge Policies

The 2027 syllabus explicitly requires awareness that governments apply knowledge of cognitive biases:

1. **Sunk cost fallacy**: People continue an activity because of previously invested resources
2. **Loss aversion**: People feel losses more strongly than equivalent gains
3. **Salience bias**: People focus on the most obvious option

Policy examples: Default enrollment (opt-out vs. opt-in), graphic warning labels, simplified information presentation.

Connections to Other Topics

- **Theme 1**: Basic demand/supply concepts from Theme 1.2–1.7 are foundational
- **Theme 2.2 (Firms)**: Cost curves (MPC) connect to market failure analysis

- **Theme 3**: Minimum wage, government macro policies build on micro foundations
- **Paper 2 Essays**: Market failure and government intervention are common essay topics

Common Misconceptions

1. **"Taxes always increase price for consumers"**: Not always — depends on elasticities
2. **"Market failure means the market doesn't work"**: Market works, but not at socially optimal level
3. **"Public goods are goods the government provides"**: Must have non-rivalry + non-excludability
4. **"Efficiency and equity always go together"**: Often trade-off
5. **"Subsidies always benefit producers"**: Part goes to consumers through lower prices
6. **Confusing movement along with shifts**: Only price change causes movement; non-price determinants cause shifts