H2 Economics (9570) Theme 2.2 & 2.3 – Lecture Notes A-Level 2027

Syllabus

Crash-Course Overview

Markets answer: what to produce, how to produce, and for whom. Theme 2.1 covered the price mechanism (demand, supply, elasticities, basic government intervention). Themes 2.2 and 2.3 complete the micro picture:

- **Theme 2.2**: How firms behave — their objectives (profit vs. other), cost structures, strategies (pricing, product differentiation, collusion, innovation) across different market structures.
- **Theme 2.3**: Why markets fail — externalities, public goods, information failure, market dominance — and what governments can do about it (policies) plus the risk of government failure.

These two themes are tightly linked: firms' behaviour can cause market failure, and government policies constrain firms' decisions.

Syllabus Learning Outcomes

Code	Learning Outcome
Theme 2.2: Firms and Decisions	
2.2.1a	Profit max: $\pi = TR - TC$, MR = MC (MC rising).
2.2.1b	Alternatives: revenue max (MR=0), satisficing, market share.
2.2.2a	Cost/revenue: SR (TFC, TVC, TC, AFC, AVC, AC, MC) and LR (LRAC).
2.2.2b	Internal/external economies/diseconomies of scale, linked to LRAC.
2.2.3a	Strategies: growth, diversification, shut-down, price competition, 3rd-degree price discrimination, innovation, marketing, collusion.
2.2.3b	Firms consider industry competition (4 market structures).
2.2.3c	Impact on: efficiency (allocative, productive, dynamic), consumer welfare, (choice, quality, surplus), other firms (cost, revenue, profit).
2.2.3d	Cognitive biases, tech disruptions, social/environmental concerns.
Theme 2.3: Microeconomic Objectives and Policies	
2.3.1a	Efficiency (MSB = MSC) and equity as govt objectives.
2.3.1b	Deadweight loss: reduction in net social benefit.
2.3.1c	Efficiency $\neq$ equity — possible trade-off.
2.3.2a	Market failure: free market fails to allocate efficiently.
2.3.2b	Causes: public goods, externalities, info failure, factor immobility, market dominance.
2.3.3a	Policy toolkit: taxes, subsidies, quotas, tradeable permits, direct provision, regulations, public education, nudge.
2.3.3b	Effectiveness of policies and government failure.

Theme 2.2: Firms and Decisions

2.2.1 Objectives of Firms

Profit Maximisation

The standard assumption: firms maximise profit. This provides a clear benchmark.

Definition Profit

Profit (π) = total revenue minus total cost: $\pi = TR - TC$. Profit-maximising output occurs where **MR** = **MC** and MC is rising.

Why MR = MC?

- $MR > MC$: next unit adds more to revenue than cost → profit ↑ → expand output.
- $MR < MC$: next unit adds more to cost than revenue → profit ↓ → reduce output.
- $MR = MC$: no further gain — profit maximised.

Why MC rising? Ensures it is a maximum, not a minimum.

Warning

Firms may lack sufficient or accurate information to know their MR and MC curves. Real-world firms operate with uncertainty — a key limitation of this model.

Alternative Objectives

1. **Revenue maximisation**: Produce at $MR = 0$ (TR is at peak). Higher output, lower price than profit max. Common when manager bonuses are tied to revenue.
2. **Profit satisficing**: Achieve a "satisfactory" profit level and stop. Based on Herbert Simon's bounded rationality — firms lack time/info to optimise.
3. **Market share dominance**: Prioritise market share over short-run profit. Common in tech platforms with network effects (Grab, Shopee, Amazon).

Exam Tip

In evaluation: a startup pursues market share, a family firm satisfices, a listed company faces shareholder pressure for profit max. Context matters.

2.2.2 Cost and Revenue

Definition Short Run

At least one factor fixed (typically capital). Firm varies output by changing variable inputs (labour, raw materials).

Term	Abb.	Definition
Total Fixed Cost	TFC	Costs not varying with output (rent, salaries)
Total Variable Cost	TVC	Costs varying with output (materials, wages)
Total Cost	TC	$TC = TFC + TVC$
Average Fixed Cost	AFC	$AFC = TFC/Q$ — falls as Q rises
Average Variable Cost	AVC	$AVC = TVC/Q$ — U-shaped
Average Cost	AC	$AC = TC/Q = AFC + AVC$ — U-shaped
Marginal Cost	MC	$MC = \Delta TC/\Delta Q$

Key relationship: MC intersects AVC and AC at their minima. When $MC < AC$, AC falls; when $MC > AC$, AC rises.

Definition Long Run

All factors variable. No fixed costs. Firm can change scale.

The LRAC curve is U-shaped and is an **envelope curve** — it touches the minima of various SRAC curves (each a different plant size).

Economies & Diseconomies of Scale

Definition Internal Economies of Scale

Cost advantages from the firm's own growth → LRAC falls.

Causes: technical (specialisation, indivisibilities), managerial (specialised managers), marketing/buying (bulk discounts), financial (lower interest rates), risk-bearing (diversification).

Definition Internal Diseconomies of Scale

Beyond a point, coordination problems → LRAC rises.

Causes: coordination breakdown (more layers), alienation, principal-agent problem (managers pursue own goals).

Definition External Economies/Diseconomies

External economies: industry growth benefits all firms (skilled labour pool, specialist suppliers, infrastructure) → LRAC shifts down. **External diseconomies**: industry growth drives up input prices → LRAC shifts up.

Singapore example: Jurong Island petrochemical cluster (external economies).

2.2.3 Firms' Decisions and Strategies

Four Market Structures (Awareness Level)

	Perfect C.	Monopolistic C.	Oligopoly	Monopoly
No. of firms	Very many	Many	Few	One
Product	Homogeneous	Differentiated	Diff./Homog.	Unique
Barriers	None	Low	High	Very high
Market power	None	Some	Significant	Complete

Market structure shapes strategy: perfect comp. firms are price-takers, monopolistic comp. firms differentiate, oligopolists consider rivals' reactions, monopolists are price-makers with full pricing power.

Strategies in Detail

Growth, Diversification, and Shut-Down

Growth: Internal (reinvest profit) or external (M&A). Exploits economies of scale and increases market power. **Diversification**: Enter new markets/products to spread risk. **Shut-down**: Short run — shut if $AR < AVC$. Long run — exit if $AR < AC$.

Price Competition

Competing by lowering prices. In oligopoly, may trigger a **price war** that harms all firms. Oligopolists often prefer non-price competition or tacit collusion.

Third-Degree Price Discrimination

Definition

Charging different prices to different consumer groups based on PED differences, not cost differences.

Conditions: (1) market power, (2) separable markets (no resale), (3) different PEDs across groups. Higher price to the less elastic group. **Effects**: Firm gains higher profit. Elastic-market consumers benefit (lower price). Inelastic-market consumers lose (higher price). Total output may increase. **Singapore examples**: MRT concession fares, student movie tickets, tiered hospital charges (citizen < PR < foreigner).

Innovation and R&D

Product innovation (new products) and process innovation (lower costs). Central to **dynamic efficiency**. Patents create temporary monopoly power. Risky and costly — small firms may lack resources.

Marketing and Product Differentiation

Making a product appear distinct through branding, design, quality. Reduces PED for the firm's product → pricing power.

Collusion

Definition

Agreement (explicit or tacit) between firms to coordinate prices, output, or market shares to increase joint profits.

Overt collusion (cartel) — illegal in Singapore (Competition Act). **Tacit collusion** (price leadership) — coordinated behaviour without explicit agreement. **Why unstable**: Prisoner's dilemma — each firm has incentive to cheat. Stable when: few firms, high barriers, similar costs, repeated interaction.

Impact of Firms' Decisions

Efficiency:

- **Allocative**: $P = MC$. Perfect comp. achieves this; monopoly does not ($P > MC$).
- **Productive**: minimum AC. Competitive pressure forces cost minimisation.
- **Dynamic**: innovation over time. Monopoly profits can fund R&D (Schumpeter).

Consumer welfare: More firms → more choice → better quality → more surplus. **Other firms**: Price competition cuts rivals' revenue/profit; collusion preserves them.

Emerging Topics (2027 Syllabus)

Cognitive biases: Firms exploit sunk cost fallacy (subscriptions), loss aversion ("limited time offer"), salience bias (highlighting discounts, hiding fine print). **Technological disruptions**: AI, digital platforms disrupt incumbents (streaming vs. cable, e-commerce vs. retail). **Social/environmental**: ESG creates compliance costs but green branding opportunities.

Theme 2.3: Microeconomic Objectives and Policies

2.3.1 Governments' Microeconomic Objectives

Definition Efficiency

Occurs at the social optimum: $MSB = MSC$. Society's welfare is maximised.

Definition Equity

Fairness in the distribution of essential goods and services. A normative concept.

Warning

Efficiency $\neq$ equity. Markets can be efficient but highly inequitable. Pursuing equity (redistribution) may reduce efficiency (distortion, DWL).

Definition Deadweight Loss

Reduction in net social benefit when output deviates from social optimum. Lost gains from trade.

2.3.2 Market Failure and its Causes

Definition Market Failure

Free market cannot allocate resources efficiently — $MSB \neq MSC$.

Six causes:

1. Public Goods

Goods that are **non-rivalrous** and **non-excludable**. Non-rivalry: one person's consumption does not reduce availability for others. Non-excludability: cannot prevent non-payers from consuming → **free-rider problem**. **Non-rejectability**: if provided, everyone must consume it (national defence). Result: free market under-provides (or fails to provide) public goods. Government must step in with direct provision.

2. Externalities

Costs/benefits affecting third parties, not reflected in market prices. **Negative externalities**: $MSC > MPC$ → over-production relative to social optimum. (Pollution, noise, second-hand smoke.) **Positive externalities**: $MSB > MPB$ → under-production. (Education, vaccination, R&D spillovers.)

Exam Tip

Two-diagram approach: one where $MSC > MPC$ (negative, over-production), one where $MSB > MPB$ (positive, under-production). Label the DWL triangle.

3. Information Failure

Consumers/producers lack information for rational decisions. **Asymmetric information** — one party has more info:

- **Adverse selection**: Hidden characteristics (used car "lemons" market).

- **Moral hazard**: Hidden actions (insured drivers take more risks).

Also: merit goods (under-consumed, e.g. education) and demerit goods (over-consumed, e.g. cigarettes).

Exam Tip

Diagrams of asymmetric info **not required**. Focus on definitions and examples.

4. Factor Immobility

Occupational: workers lack skills for growing industries (structural unemployment). **Geographical**: workers cannot relocate due to housing costs or family ties.

5. Market Dominance

Market power → restrict output, raise $P > MC$. Creates allocative inefficiency (DWL), X-inefficiency, reduced consumer welfare.

Exam Tip

Inequity is **not** a market failure — it is a distributional issue. Do NOT list income inequality as a market failure.

2.3.3 Microeconomic Policies

Policy Toolkit

Policy	Description
Taxes	Pigouvian tax on negative externalities. Raises MPC toward MSC.
Subsidies	For positive externalities. Lowers price, raises consumption.
Quotas	Legal limits on output (COE, fishing quotas).
Tradeable permits	Cap-and-trade (EU ETS, Singapore carbon market).
Direct provision	Government provides directly (schools, defence, hospitals).
Regulations	Rules mandating/prohibiting behaviour (emissions standards).
Public education	Information campaigns (anti-smoking, SkillsFuture).
Nudge	Use biases to steer behaviour (opt-out organ donation, CPF defaults).

Government Failure

Definition

Government failure: intervention makes the outcome **worse** than the original market failure.

Causes: imperfect info, regulatory capture, bureaucratic inefficiency, unintended consequences (rent control reduces supply, minimum wage may cause unemployment), administrative costs, political constraints.

Exam Tip

In evaluation: analyse SR vs. LR, intended vs. unintended consequences, winners vs. losers, possibility of government failure. This accesses AO4 marks.

Singapore Examples Bank

Concept	Singapore Example
Market dominance	Grab, Singtel, DBS
Collusion / anti-comp.	CCCS prosecution of cartels
Negative externality	Carbon tax: \$25/tCO2e (2024) → \$50-80 by 2030
Positive externality	Education subsidies, SkillsFuture
Public goods	SAF (national defence), street lighting
Merit goods	HDB public housing, CPF for home ownership
Quota / regulation	COE (Vehicle Quota System)
Nudge	CPF defaults (loss aversion), opt-out organ donation
Factor immobility	SkillsFuture, Workforce Singapore retraining
Price discrimination	MRT concessions, tiered hospital charges

Key Diagrams Summary

1. **Profit max ($MR = MC$)**: MC, AC, MR curves. Profit = $(P - AC) \times Q$.
2. **Negative externality**: $MSC > MPC$. Market eq. right of social optimum. DWL triangle.
3. **Positive externality**: $MSB > MPB$. Market eq. left of social optimum. DWL triangle.
4. **Price discrimination**: Two sub-markets with different AR/MR. Higher price in less elastic market.
5. **LRAC**: U-shaped. Falling = economies of scale. Minimum = MES. Rising = diseconomies.