Economics Summary Notes

Firms and How They Operate

Firm: organisation formed by entrepreneurs who bring together factors of production to produce goods and services

Plant: physical location of production of goods and services

Industry: group of firms producing a single or related goods and services

Explicit costs: payments made directly to supplier of inputs (wages, prices of inputs, depreciation, sinking funds)

Implicit costs: Opportunity cost of production (salary forgone, interest forgone)

Accounting costs = explicit costs

Economic costs = explicit + implicit costs

Traditional objective of firms: profit maximising

Economic profit = revenue - economic costs

- Supernormal: positive economic profit, TR>TC
- Normal: 0 economic profit, TR=TC
- Subnormal: negative economic profit, TR<TC

Non-traditional objective of firms:

- Managerial theories: principal-agent problem where there is conflict of interest of shareholders as firms expand → owners want to maximise profits, while managers want to maximise self welfare (salary, job security, fringe benefits)
- Satisficing behaviour: to satisfy different interests by different stakeholders that may be conflicting in nature (e.g. Fulfill profit expectations then maximise salary)
- Nationalised industries: owned by state, maximise social welfare (quality of
 - service, affordability, allocative efficiency) \rightarrow usually public transport, energy
- Imperfect information: decisions made do not maximise profits as firms don't have details of demand and cost conditions
- Social enterprise: profits as means to achieve primary social or environmental mission, i.e. profits is not the goal but a means → e.g. MINDS to get employment for people with intellectual disability

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Production in the Short Run

Short run: at least one fixed factor of production

Fixed factor: input that cannot be increased in supply in the long run (rental, machines)

Variable factor: input that can be increased in supply in the short run (labour, raw materials)

Law of Diminishing Marginal Returns: as more units of a variable factor are applied to a given quantity of fixed factor, there comes a point beyond which an additional output from additional units of the variable factor eventually diminish. (i.e. point where 1 additional input adds less additional output than previously)

3 Stages of production in short run:

Stage 1: Increasing additional output with additional input (total output rises at increasing rate)

- More efficient labour-capital combination, fixed factor more efficiently used by adding more workers
- Specialisation and division of labour \rightarrow efficiency

Stage 2: Decreasing additional output with additional input (total output rises at decreasing rate)

- Inefficient labour-capital combination, fixed factor is over utilised
- Law of diminishing marginal returns: additional output adds less to input
- Stage 3: Negative additional output with additional input (total output falls)
- Overcrowding of fixed factor causes fall in additional output

Graph of total output

- Stage 1 increases at increasing rate
- Stage 2 increases at decreasing rate
- Stage 3 falls

Graph of marginal/additional output Stage 1 increasing Stage 2 decreasing Stage 3 negative (decreasing below x axis)

*Note: Law of diminishing marginal returns only for short run with at least 1 fixed factor

Theory of Costs in the Short Run

Fixed cost: cost that does not vary with output, must pay even if production does not take place (cost of fixed factor) Variable cost: cost that varies with output, not incurred when production does not take place (cost of variable factors) Total cost (TC) = total fixed cost (TFC) + total variable cost (TVC) Average cost (ATC) = total cost / quantity Average variable cost = total variable cost / quantity Average fixed cost = total fixed cost / quantity Marginal cost = increase in total cost / increase in quantity

Fixed cost:

Total fixed cost curve is a horizontal line (incurred regardless of production) Average fixed cost curve falls continuously with output (fixed cost spread over more output)

Variable cost:

Total variable cost curve is an upward straight line (proportional to increase in output) Average variable cost curve is U shaped

- Decreases initially as additional input adds more to output than to cost (thus more additional output is spread over additional cost)
- Increases eventually as additional input adds more to cost than to output (thus less additional output is spread over same additional cost)

Total cost:

Total cost curve is also an upward straight line (y intercept is total fixed cost) Average total cost curve is U-shaped

- ATC is vertical summation of AFC and AVC
- Initially, both AFC and AVC decreases, so ATC decreases
- As AVC starts to increase, fall in fixed outweighs increase in variable, ATC continues to fall
- As variable increases more, increase in variable outweighs fall in fixed, ATC rises
- ATC and AVC converges as AFC falls continuously to zero

Marginal costs:

Marginal cost curve is U shaped

- Initially falls as additional input (1 unit marginal cost) is spread over increasing additional output (thus each additional output costs less to produce)
- Then increases as additional input (still 1 unit marginal cost) spread over less and

less additional output (thus each additional output costs more to produce)

- Marginal cost is change of total cost
- If MC>ATC/AVC, ATC/AVC will increase; if MC<ATC/AVC, ATC/AVC will decrease

- Thus graph of MC will cut both ATC and AVC at their respective minimum points **Production in the Long Run**

Long run: all factors of production can be varied except for level of technology

Returns to scale: proportion of increase of output in relation to increase in input

- Increasing ROS: output increases more than proportionately with increase in input
- Constant ROS: output increases proportionately to the increase in input
- Decreasing ROS: output increases less than proportionately with increase in input *Note: Not tested, understanding is sufficient.

Theory of Costs in the Long Run

Planning horizon: represents various average costs attainable at various stages, thus firm can decide is scale of production \rightarrow by varying fixed factor (in short run), can further reduce average cost, thus lowest cost in short run > lowest cost in long run

Long run average cost (LRAC): U shaped

- As output rises, average costs fall due to internal economies of scale
- Minimum efficient scale: long run average costs at its minimum, optimal plant size and optimal output level beyond which no additional economies of scale can be reaped
- Beyond the MES, average costs increase due to internal diseconomies of scale
- Long run cost curve is flatter than short run cost curve as the size of the firm can be altered to deal with output increase

Envelope Theorem: LRAC envelopes SRAC curves \rightarrow LRAC is tangential to one point on

the SRAC curve

- This output level is obtained most cheaply by the plant size represented by SRAC
- Note that except for the SRAC curve that is tangential to the LRAC's MES, the minimum point on all other SRAC curves (representing the lowest average cost in the short run to produce that amount of output) is never the lowest average cost

possible in the long run \rightarrow by increasing plant size, a lower average cost is possible.

- LRAC is a planning curve: decide plant size based on desired output level

Internal Economies of Scale: savings as a result of firm's expansion, action and policies (average cost per unit of output is falling)

- 1. Technical economies of scale: technical and engineering factors
 - a · Factor indivisibility: fixed factor has high maximum capacity, so same fixed

factor can be used to increase production without increasing cost

- b Law of increased dimensions: increase in cost to construct increased dimensions is less than increase in space or capacity of factor
- c
 Specialisation and division of labour: more specialised tasks that reduce training costs, more efficient at specific task
- d
 Linked processes: linking various processes of production together to minimise transport and save time and energy
- e $\cdot~$ By product economy: make use of waste materials $\rightarrow~$ manufacture waste

products to sell to reduce average costs, or more efficient use of resources

- 2. Managerial economies of scale: specialisation at managerial level, specialists supervision to create cost efficient human resource management process
- 3. Marketing economies of scale: bargaining advantage of buying materials in bulk
- 4. Financial economies of scale: easier and cheaper to raise funds due more credibility

 \rightarrow lower interest rates

- 5. Research and development economies of scale: cost of R&D can be spread across higher output, and innovation and technical improvements due to R&D further reduce costs
- 6. Welfare economies of scale: improve labour working conditions to increase output through welfare services like canteens, medical benefits
- 7. Risk bearing economies of scale: spread uncertainty of cost of production or R&D over a larger output level

Internal Diseconomies of Scale: increase in costs due to expansion of firm, as a result of firm's actions and policies

- 1. Complexity of management: principal-agent problem, long chain of authority leading to lags in decision making, loss of efficiency, and more difficult coordination
- 2. Strained relationships: impersonal relationships as firm size increase, leading to decreased loyalty, sloppy work attitude and lower efficiency

External Economies of Scale: savings in all firms due to expansion of industry

- 1. Economies of concentration: mutual benefits due to many firms in the same industry concentrated in the same area
 - Availability of skilled labour: educational facilities to train workers available, or
 joined training facilities set up to train workers → reduce cost of training
 - b · Well developed infrastructure: better roads, warehousing, railway, public utilities and commercial facilities to cater for industry → reduce average cost
 - c ➤ Reputation: large and well established concentrated area of industry builds up a name → associated with quality, encouraging brand loyalty
- 2. Economies of disintegration: subsidiary industries to cater to needs of major industry

(eg manufacture seat belts, tyres as subsidiaries to main car industry)

3. Economies of information: publication of journals help to improve productivity of individual firms, research and expertise can be concentrated to reduce costs

External Diseconomies of Scale: increase in costs due to expansion of industry (all firms)

- 1. Increased strain on infrastructure: infrastructure taxed to limits (e.g. Traffic congestion leading to loss of time and fuel)
- 2. Rising factor costs: growing shortage of raw materials \rightarrow competition push up prices

*Note: external (dis)economies of scale involve the shifting of the LRAC curve, upwards for EDOS and downwards for EIOS.

LRAC curves do not have similar shapes as different industries have different minimum efficient scale

Some firms reach MES at very low output levels, others are extremely high MES affects the market structure:

- If MES is low relative to market demand, industry can accommodate many firms
- If MES is high relative to market demand, industry can only accommodate a small number of firms that is sufficient to satisfy market demand
- Constant returns to scale: horizontal part on LRAC such that lowest cost incurred over a range of output

Growth of Firms

Measurement of size: quantity of output, total revenue, market share, capital stock/assets, number of employees

Motives for growth:

- exploit available internal economies of scale through expansion of output/mergers

ightarrow lower average costs to edge out rivals through lower prices

- Expanding range of products and markets
- Gain market share and thus market power
- Increase market valuation: value placed on industry by society
- Reduce risk of acquisition by other firms

Methods for growth

1. Internal expansion: producing more of the same output or extending range of products through bigger plants, funded by using profits, loans or Initial Public Offering (IPO: position company for international expansion and easier access of

capital \rightarrow become public company with shareholders and investments: funds!)

2. Merger or acquisition: form new enterprise (merge: do together, acquire: take over)

- a Vertical integration: merger/acquisition on different stages of production
 - Backward integration: merge/acquire firm in earlier stage of production, control over quality and quantity of raw materials as well as security, even to restrict supply to competitor and to absorb profit margin
 - ii. Forward integration: merge/acquire firm in later stage of production, to secure marketing outlets and raise standards of outlets
- b Horizontal integration: same stage of production to dominate market by reducing competition and increase in market share due to increased production capacity with greater IEOS to reap
- c
 Conglomeration: combination of firms not directly related (eg banks and developing firm) to diversify output to reduce risk of fluctuation in market
- 3. Franchising: using successful business as a model and lets a franchisee use it to

produce goods \rightarrow franchisor gets fee from franchisee who uses the brand to supply,

franchisee gets to keep profits \rightarrow but franchisee has to live up to standards set by

franchisor or risk cancellation Existence of Small Firms

Advantages of large firms: economies of scale and lower average costs \rightarrow why are there

still small firms?

Demand factors (i.e. small demand or preferences of demand)

- Nature of product
 - Perishables: fresh produce are small as cannot afford to mass produce
 - Preference for variety rather than mass production of same product
 - Specialised product: machines, religious products have limited market
- Prestige markets: market limited by price (eg sport cars, jewelry)
- Personalised services: individual attention needed make it impossible to expand (eg lawyers, dentists, doctors, hairdressing)
- Geographical limitations: bulky product relative to value may be localised because transportation costs are too high relative to production cost

Supply factors

- MES at low levels of output: diseconomies occur at low levels of output (eg those requiring personalised attention like tailoring, clinical services), optimal plant size is small
- Low entry barriers: if cost of setting up is low, is it easy for small firms to be set up
- Vertical disintegration: production process is broken into series of separated processes and different small firms take up different stages of production
- Lack of capital/difficulty raising capital: unable to raise funds for expansion
- Unwillingness to take greater risks: expansion involves investments which are risky, and losses are great if it fails, so small firms may not want to take the risk of

failure/prospects of growth of market

- Banding: individual businesses band to gain bargaining advantages of buying in bulk
- Profit cycles: products appear and disappear, at early stages of a product, demand tends to be low and firms stay small as it takes time to grow
- Non-profit maximisation/managerial attitudes: reasons not due to profits
 - Motivated by self employment
 - Prestige to start small businesses (easier to set up than large ones)
 - Independence and want to keep business under family control
 - Contented with reasonable income
 - Interest (business set up not for profit reasons)

Co-existence of Small and Large Firms

Small firms still exist even if above reasons are not applicable, why?

 Nature of industry's LRAC curve: constant returns of scale meaning that economies of scale are quickly exhausted and firms experience low costs over a range of output

(saucer shaped LRAC curve) \rightarrow small and large firms are thus equally cost efficient

and can coexist

- Segmented markets: diversified range of products in an industry allows for small firms to cater to niche markets, large firms focus on mass production while small firms focus on customisation/personalisation/prestige (eg cars vs sport cars)
- Disintegrated production process: small firms can complement larger firms by specialising in producing components for the larger firm
- Joint ventures: cooperation among small firms to protect their interests such that they jointly source for raw materials to enjoy internal economies of scale enjoyed by the large firms
- Technological progress: capital intensive used to favour large firms, but recent technological advancements favour small firms by new technology in small scale equipment

Spectrum of Competition

Characteristics determining market structure

- Number of sellers relative to market size: market concentration ratio
- Nature of products: homogenous or differentiated, consumer choice

- Knowledge of product/market: consumer's and producer's perspectives
- Barrier to entry and exit: impede entry, limiting amount of competition

Types of market structures: perfect vs imperfect (monopolistic competitive, oligopolistic, monopolistic)

Perfect Competition

Examples: Agriculture, stock exchange, foreign exchange

- Idealistic, unrealistic \rightarrow still serves as standard to compare with existing markets

Characteristics:

- Large number of firms: due to lack of barriers to entry, each has insignificant share of market → as each firm's output is insignificant to market supply
- Homogenous product: consumers have no preference for producer, each product is perfect substitutes of every other firm \rightarrow unable to influence price \rightarrow price taker
- Perfect knowledge:
 - All producers know the prices and production costs of rivals, market costs, and production technologies → technology is easily copied
 - Producers also know type of profits made → enter industry if making supernormal profits
 - Buyers have perfect information of price and quantity → price uniformity and price set at equilibrium (market forces)
- No barrier to entry/exit:
 - Factors of production are perfectly mobile → no one has cost advantages over another
 - Fixed costs are minimal, with no transaction costs \rightarrow easy entry and exit
 - Firms enter and exit industry depending on whether it is making supernormal or subnormal profits

Behaviour:

- 1. Price taker: with insignificant market share and homogenous product, firms have no control over price \rightarrow follows market price determined by market equilibrium
- 2. Demand is perfectly price elastic: consumers will only buy at the prevailing market price decided by market demand and supply
 - a
 Increase price: consumers switch to other firms, demand falls to zero

- b > No incentive to decrease price: can sell everything at market price
- c Demand curve is horizontal = average revenue = marginal revenue (since average revenue = total revenue/quantity and marginal revenue is equal since all units of output are sold at the same price)
- 3. Profit maximising: no tendency to change its input and output decision
 - a Firms profit maximises at point where marginal cost (MC) = marginal revenue (MR) and marginal cost is rising
 - b If MC<MR, each additional unit of output adds more to revenue than to cost, thus firm produces at MC=MR where MC is rising since if MC is falling then producing an additional unit of output will still add more to revenue than to cost
 - c > Profit maximising level at MC = MR, which also happens to = AR = Demand
- 4. Short run profits: supernormal, normal or subnormal profits
 - a Supernormal profits: MC cuts MR, intersection is above corresponding AC curve at the same level of output
 - b Normal profits: MC intersects MR which intersects AC (0 economic profit)
 - c Subnormal profits: AC lies above intersection of MC and MR at same output level
- 5. Long run normal profits: due to no barrier to entry (LRAC curve cuts MR=AR=MC)
 - a \cdot Short run supernormal profits: new firms enter the industry \rightarrow increase total

output/supply \rightarrow supply curve shifts right \rightarrow equilibrium price falls \rightarrow fall in

revenue and erosion of supernormal profits until long run normal profits

b \sim Short run subnormal profits: firms making subnormal profits leave \rightarrow fall in

total supply \rightarrow supply curve shifts left \rightarrow equilibrium price rises \rightarrow rise in

revenue and profits until long run normal profits reached

- c > Short run normal profits: no incentive to enter or leave industry
- 6. No non-pricing strategies (not willing and not able)
 - a > Due to perfect information, there is no incentive to innovative or engage in product differentiation as products are homogenous and any new technology is easily copied
 - b > Due to long run normal profits, firms have no money to engage in non-pricing strategies like advertising, R&D or product differentiation

*Note: Firms will only stop production and leave the market if TR<TVC. This is because if they stop production once TR<TC, then they will incur a loss of TFC, but if they continue production, if TR>TVC they make less loss as they are able to cover some parts of TFC.

Monopoly

Examples: Power/utilities provision, railway systems, telecommunications Characteristics

- Single producer: one firm in the industry fulfilling all market demand \rightarrow demand curve of the firm is the demand curve for the industry
- No close substitute for the product: no other firms sell close substitutes of the product (very low cross elasticity of demand)
- High/absolute barriers to entry: new firms are not free to enter the market due to high barriers to entry, either natural or artificial barriers erected to prevent competition from entering the industry
 - Barriers to entry are high to impede firms entering an industry so that existing firms have an advantage over them
 - Natural monopoly:
 - Incumbent operating at a large scale \rightarrow able to enjoy substantial internal
 - economies of scale and produce at lower average costs
 - New entries start with higher production costs, unable to compete with incumbents \rightarrow discourages them from entry
 - High fixed costs: market demand large enough to support only one large firm operating efficiently
 - Very large MES means that established firms can lower prices to ward off potential or new competitors
 - Strategic entry deterrence: gain control of market demand through product differentiation to induce consumer loyalty
 - Intensive advertising campaigns
 - Extensive research and development to develop new products or new production technologies
 - Can sustain losses longer than new entrants \rightarrow price war
 - Legal barriers: legal protection of rights by patents, copyrights, licenses
 - Ownership/control over key inputs: deny access to key input for new entrants
 - Mergers/collusion/takeovers: takeover any new entrant in order to expand, increase market share and reduce competition
- No knowledge of product
 - Consumers are not aware of cost and production of product (monopoly can set high prices)
 - Technology is not easily copied, often protected by patents (further increases price setting ability)

*Note: definition of monopoly depends on how narrowly it is defined (eg drug company can have monopoly over a certain drug but the illness can be treated by other drugs too), sometimes one firm that takes up a huge percentage of market share can be considered a monopoly

*Note: Barriers to entry are temporary, potential competitors are drawn by profits and will develop new technologies to break into the market

Behaviour

- 1. Monopoly is able to affect price, it is a price setter, with average revenue and marginal revenue curves both downward sloping
 - a As a price setter, it can either set the price or set its output, but not both at the same time
 - b AR is always greater than MR as in order to sell an additional unit of output, the firm needs to lower the price of all the rest of the output sold → MR is thus the revenue from additional output revenue lost from remaining units of output
- 2. Great price setting ability as with no close substitutes, demand for its products are relatively more price inelastic \rightarrow can restrict output to increase price, or practice

price discrimination

- 3. Profit maximising at MC = MR, MC rising
- 4. Short run profits (supernormal, normal or subnormal) \rightarrow same as PC firm (in short

run, continue production as long as TR>TVC)

- 5. Long run supernormal profits
 - a $\sim~$ Retain long run supernormal profits but erecting high barriers to entry $\rightarrow~$ less
 - competition, since entrants cannot enter industry as easily, they are not able to erode the monopoly's supernormal profits by increasing total supply
 - b Only continue production if they break even, i.e. making normal profits
- 6. Research and development ability (ability but no incentive)
 - a > Due to long run supernormal profits, monopolies have funds to engage in research and development to further entrench its market power
 - b > By improving its products, it encourages brand loyalty, making its products more price inelastic, thus being able to increase price to increase revenue
 - c > But, lack of incentive as there is a lack of competition

Oligopoly

Example: Taxi, public transport (duopoly), telecommunications, OPEC, airlines industry Characteristics

- A few dominant firms relative to market size (4 firm concentration ratio c.50%)
 - Each command large proportion of market share → price setter to certain degree
- Homogenous or differentiated products
 - Homogenous: perfect oligopoly, demand is not perfectly price elastic so firm has some control over its pricing policies
 - Differentiated: imperfect oligopoly, less fear of rival actions as demand is less

price elastic due to product differentiation, though because of small number of firms in the industry rival interdependence still prevails

- Huge barrier to entry: substantial internal economies of scale (due to high fixed cost, natural oligopoly → high MES, low costs at high output levels) such that new entrants cannot match low costs
- Imperfect knowledge: Imperfect information regarding production methods and prices \rightarrow serves as barrier to entry as production methods are protected

Behaviour

1. Consider rivals' actions: only a few dominant firms \rightarrow consider pricing and non

pricing strategies of rivals \rightarrow rival conscious (mutual interdependence)

- 2. Pricing strategy: Rigid prices
 - a > Demand curve is kinked as firms in oligopoly are rival conscious
 - b Increase prices: rivals unlikely to follow, demand fall more than proportionately to increase in price, thus demand is more price elastic above

prevailing price \rightarrow no incentive to raise price

- c ➤ Decrease price: rivals likely to follow, demand increases less than proportionately to fall in price, thus demand is less price elastic below prevailing price → no incentive to lower price
- d > Thus prices tend to be rigid/stable/sticky, with a kinked demand curve
- $e \cdot As$ prices are sticky, there is a region where the MC cannot be determined on

the kinked graph \rightarrow if MC rises within this region, then firms have to absorb

the increased costs instead of passing it on to consumers in higher prices

- f > The less differentiated the products are, the greater the fear of rivals' reaction
- 3. Pricing strategy: Price competition
 - a \cdot Sporadic and short term prices wars arise occasionally \rightarrow attempt by firms,

usually firms with the largest MES, to undercut rivals by lowering prices that they cannot match so as to gain greater market share

- b Arise when there is considerable excess capacity
- c \cdot Inevitable short run losses \rightarrow not sustainable and unpreferred means of competition
- 4. Pricing strategy: Cooperative oligopoly formal or informal agreement to fix price to reduce the unpredictability of rivals' reactions
 - a > By agreeing output levels, fixing prices or agreeing not to poach other markets in order to limit competition amongst themselves

- b · Increases profit of industry as a whole
- c > Cartels: Explicit agreements to collude to set price by restricting output
 - i. Each firm has a production quota
 - ii. Cartel's cost curve is the horizontal summation of all individual members' cost curves
 - iii. Joint profits are maximised when cartels' MC=MR, strong incentive
 - iv. But also strong incentive to "cheat" as assigned quota may not be profit

maximising for the firm even if the entire industry is profit maximising \rightarrow

producing beyond stipulated output will maximise profits

- v. Collusion agreements are thus fragile and unstable
- d
 Tacit collusion: price leadership where unwritten rules for restricted price cutting, extensive advertising or other forms of competition
 - i. Price set by price leader is set as market price \rightarrow usually profit maximising level of the price leader
 - ii. If price leader increases price, other will follow \rightarrow everything profits increase
- 5. Non pricing strategies: product differentiation and R&D
 - a > Production differentiation to reduce fear of rivals' reactions, make demand more price inelastic so as to increase price setting ability
 - i. Real physical differences: altered in some physical way
 - ii. Imaginary differences: marketing techniques and advertising to create perceived differences
 - iii. Differences in conditions of sale: providing customer services, ambience
 - b
 Differentiation resulted from huge funding in R&D and advertising
 - i. Long run supernormal profits \rightarrow ability to invest and advertise
 - ii. Incentive to maintain or expand market share and erect barrier to entry, incentive to increase profits by increasing price \rightarrow incentive to invest
 - iii. Advertising encourage customer loyalty to make price more demand inelastic, giving leeway to raise prices \rightarrow incentive to advertise
 - iv. Increase range of products
 - v. Improve technology to further lower costs so get edge over rivals
- 6. Long run supernormal profits due to high barriers to entry
- 7. Short run profits (supernormal, normal or subnormal) \rightarrow same as PC/Monopoly

Monopolistic Competition

Example: tissue, food and beverage industry, small provision shops

Characteristics

- Large number of consumers and producers relative to market size \rightarrow due to low

barriers to entry \rightarrow each firm takes up insignificant market share

- Differentiated products: by quality, design, packaging, branding and marketing
- No/low barriers to entry/exit: Factors of production are relatively mobile and fixed costs are sufficiently low with technologies easier to utilise and copy, thus firms are (relatively) more free to entry and exit
- Imperfect knowledge: both sellers and buyers have imperfect information, and cost structures may bee slightly different

Behaviour

- 1. Pricing strategies:
 - a > If firm lowers prices, profits increase due to price elastic demand (many close substitutes), but fall in revenue in other firms is spread over so many firms

such that rivals are less likely to retaliate \rightarrow slight price setting power with less

fear to rivals' reactions

- b
 Collusion is not possible due to large number of firms
- 2. Non pricing strategies: differentiation of products from rivals to make other products of rivals less substitutable, and build consumer loyalty, so that they have increased price setting ability
 - a Physical, imaginary or differences in conditions of sale
 - b
 Differentiation to increase demand and make demand less price elastic
 - $c \mathrel{\scriptstyle{\sim}}~$ Extent of differentiation is low due to long run normal profits \rightarrow lack of funds

to engage in rigorous research, differentiation and advertising

- 3. Differentiated products: some degree of market power and price setting ability, but due to high number of firms thus high number of substitutes, market power is limited
- 4. Long run normal profits: low barriers to entry and exit thus any supernormal profits will be eroded by new firms entering the industry and any subnormal profits will be

restored by firms leaving the industry \rightarrow can only engage in small scale advertising

5. Short run profits (supernormal, normal, subnormal) \rightarrow same as the rest

Performance of Market Structures

- 1. Allocation Efficiency
 - a
 Allocation of scarce resources in the right combination that maximises social welfare

- b
 Condition: price=marginal cost
- c Allocative efficiency is achieved when society values the last unit produced as much as the opportunity cost used to produce it (society's value=price, opportunity cost=marginal cost)
- d
 Maximises consumer's and producer's surplus at the same time
- e Assumption: only consumers and producers
- 2. Productive Efficiency
 - a Nacroeconomics: Resources used to maximum capacity → no underemployment or unemployment of resources (i.e. on Production Possibility Curve)
 - b Microeconomics:
 - i. Society: Lowest long run average cost (at MES) where all internal economies of scale have been exhausted
 - ii. Firm: Lowest possible average cost at every output level (i.e. every point on the LRAC curve) \rightarrow X efficiency
- 3. Dynamic Efficiency
 - a Innovation arising from investment of resources into research and development
 - b \cdot Improve in level of technology \rightarrow more/better quality output (new products

and new production methods) \rightarrow fall in average cost

- c New types of products
- d \cdot But, uncertainty \rightarrow risky as not all investments lead to innovation
- 4. Equity: Fairness in distribution of wealth, income and opportunities (subjective)
- 5. Consumer Choice: freedom to choose from a variety of goods and services as well as a range of producers

Perfect Competitive Firm vs Imperfect Competitive Firm (M, O, MPC)

- 1. Allocative Efficiency
 - a
 Perfect competition
 - i. Price taker: P=AR=MR
 - ii. Profit maximising at MC=MR, thus $P=MC \rightarrow allocative efficient$
 - b Imperfect competition
 - i. Price setter: MR is always smaller than AR=Demand
 - ii. Thus at MR=MC, MC rising, AR>MR so price charged for profit maximisation is higher, thus P>MC
 - iii. Note: price setting ability varies from monopoly to oligopoly to MPC, the greater the price setting ability, the steeper the curve
 - iv. Thus P>MC is greater in monopoly>oligopoly>MPC \rightarrow thus MPC is less

allocatively inefficient than monopoly

- 2. Productive Efficiency
 - a Perfect competition
 - i. Price taker: P=AR=MR
 - ii. Long run normal profits (P=AR=MR is tangential to LRAC) \rightarrow thus PC firm

produces at the MES in the long run \rightarrow productive and X-efficient

- b
 Imperfect competition
 - i. Price setter \rightarrow AR>MR
 - ii. Long run supernormal profits: AC<P=AR, thus firm is producing at falling arm of LRAC (productive inefficient, X efficient)
 - iii. Long run normal profits: AC=AR, firm usually still producing at falling arm of LRAC (productive inefficient, X efficient)
 - iv. If producing on MES, by coincidence

Perfect Competitive Industry vs Monopolistic Industry

Since monopoly=industry, i.e. firm=industry, we can compare a PC industry with a monopolistic firm

Assumption: Similar demand and cost conditions

- 1. Allocative Efficiency
 - a \sim PC Industry: Price at market equilibrium \rightarrow P=Demand=AR=MR=MC=Supply

 \rightarrow allocative efficient

- b \cdot Monopoly: Price at AR=Demand curve, corresponding with MC=Supply cutting MR curve (not AR curve), thus price charged is higher \rightarrow allocative inefficient
 - i. Underproduction: society values the last unit more than the opportunity cost to produce it \rightarrow society benefits more if monopoly produces more

 \rightarrow deadweight loss to society

- 2. Productive Efficiency
 - a · PC Industry: Long run equilibrium is at MES on LRAC \rightarrow as price taker, it is

needs to be as cost efficient as possible to maximise profits \rightarrow if not

productive/X efficient, they will make subnormal profits

- b
 Monopoly: not productive efficient by society, unless by coincidence
 - i. X efficient: at profit maximising level
 - ii. Can afford to be X inefficient \rightarrow able to retain supernormal profits \rightarrow

supernormal profits can cushion lavish spending

- iii. But, Globalisation and international competition force domestic incumbents to be X efficient to stay competitive, or international competition erodes their supernormal profits
- c > But this allocative inefficiency may be more desirable: if industry has a high

MES (i.e. high IEOS, lowest average cost at high output levels) \rightarrow monopoly's

average costs fall over a large output level \rightarrow lower MC, thus price charged is

lower than that of PC, although still allocatively and productively inefficient

- 3. Dynamic Efficiency
 - a > PC Industry: lack of dynamic efficiency due to lack of incentive and ability
 - i. Perfect information: innovations are quickly copied, no incentive
 - ii. Homogenous products: no incentive to innovate
 - iii. Long run normal profits: Lack of funds to engage in R&D
 - b · Monopoly
 - i. Imperfect information and high barriers to entry \rightarrow long run supernormal profits: ability to invest in R&D
 - ii. Huge barriers to entry \rightarrow dominant position secured \rightarrow no incentive
 - iii. Innovation may erode the value of monopoly's existing products
 - iv. But, fear of competition, potential competitors and international competition (contestable markets) may encourage innovation and research and development to maintain its dominant position

4. Equity

- a PC Industry:
 - i. Opportunities and income are spread more evenly \rightarrow even spread of profits due to low barriers of entry
 - ii. Consumer surplus is maximised
- b Monopoly:
 - i. Exacerbates inequality as profits are concentrated in the hands of the monopoly
 - ii. Consumer surplus falls as prices are set high by restricting output
- c Nowever, by argument (see previous section), monopoly may leave more consumer surplus than PC if monopoly enjoys substantial IEOS thus lowering average costs
- 5. Consumer choice
 - a PC Industry: no product choice, choice of producers, consumers determine price based on demand → consumer sovereignty
 - b Monopoly: no firm choice, no product choice, no consumer sovereignty, reduced consumer surplus

i. But, if monopoly invests in innovation \rightarrow wide product range to choose

Oligopolistic Industry

- 1. Allocative Efficiency
 - a $\sim~$ Market dominated by a few large firms: huge price setting ability $\rightarrow~$ thus AR

curve=Demand curve is downward sloping \rightarrow P>MC, allocative inefficiency

- b \cdot Allocative inefficiency is worsened if they collude \rightarrow act like monopoly
- c Wasteful use of resources
 - i. To differentiate products, engage in large scale advertising \rightarrow incur high
 - costs which are passed on to consumers in higher prices
 - ii. Wasteful duplication
- 2. Productive Efficiency
 - a \cdot Producing on falling portion of LRAC \rightarrow thus X efficient but productively inefficient in society's point of view
 - b Can afford to be X efficient due to long run supernormal profits
- 3. Dynamic Efficiency: Encourages innovation
 - a
 Existing competition encourages them to invest in R&D to differentiate their products to make their products less substitutable, build consumer loyalty,

more demand inelastic to as to reduce fear of rival's reactions \rightarrow incentive

- b High barriers to entry, thus long run supernormal profits \rightarrow ability to invest
- c But, innovation will be slow in collusive oligopolies
- 4. Equity
 - a
 Exacerbate inequality as profits concentrated in hands of few dominant firms
 - b At expense of consumers who pay higher prices (reduced consumer surplus)
 - c Worsens if they engage in collusive behaviour
- 5. Consumer Choice
 - a
 Consumer choice of firm and product due to product differentiation amongst various firms
 - b However multiple branding gives the illusion of wide choices
 - c > Extensive advertising may limit consumer choice to the dominant firms (in the case where small firms also exist)

Monopolistic Competitive Industry

- 1. Allocative Efficiency
 - a Firms charge a higher price than marginal cost as MR<AR=Demand, thus industry is underproducing as society's value of last unit>cost of production

 $\mathsf{b} \mathrel{\backsim}$ Allocative inefficient \rightarrow MPC have more firms and thus products are more

substitutable \rightarrow more demand price elastic, thus demand curve is gentler \rightarrow

less allocative inefficient than monopoly/oligopoly

- c > Advertisements, albeit smaller scale, can be said to be wasteful resources
- 2. Productive Efficiency
 - a Not productively efficient in society's point of view: not producing at MES (falling portion of LRAC)
 - b Excess capacity theorem: attempts at product differentiation causes firms to produce at higher costs than necessary
 - c X efficient due to long run normal profits: no supernormal profits to cushion spending, thus they have to operate on the LRAC or risk losses and elimination (LRAC is tangential to AR curve)
 - d
 Dynamic Efficiency
 - i. To make products less substitutable and less price elastic \rightarrow incentive
 - ii. Normal profits in the long run \rightarrow no money for extensive R&D and

advertising \rightarrow engage in small scale advertising and small product

differentiation

- e、 Equity
 - i. Low barriers to entry: opportunities and wealth spread over many firms
 - ii. Lower extent of loss of consumer surplus
- f Consumer choice: consumer sovereignty is enhanced to choose from many firms and many products that are slightly different

Is the perfect competitive market the most ideal?

- Pros: economic efficiency, equity and consumer sovereignty
- Lack of dynamic efficiency: slow pace of innovation (key to progress of society)
- Third parties cause PC industries to have non optimum allocation of resources
- Lack of variety of goods (homogenous)
- Lack of long run supernormal profits \rightarrow needed for innovation and research
- Unrealistic: restrictive and difficult to fulfill in real life

Theory of Contestable Markets

Crucial in determining price and output is not market structure by threat of competition

- Contestable markets: low barrier to entry, thus easy entry and exit, resulting in erosion of any short run supernormal profits to long run normal profits
- Thus if a threat of this is present, monopolies will
 - Keep prices down towards making normal profits \rightarrow moving towards AE

- Produce as efficiently as possible → moving towards X efficiency
- Failure to do so will result in threat of competition becoming actual competition
- Example: Airline industry: Deregulation and "Open Skies" policies, granting of licence
 - to make it easier to enter the industry \rightarrow thus market becomes contestable,

resulting in incumbents reducing prices to remain dominant

- Hit and run competition: enter a market for a short period of time where profits are high and then withdraw shortly
- Example: Delivery company to take advantage increased demand during Christmas

ightarrow national postal services will eliminate this by not charging high prices

- Regardless of market structure, firms may still behave competitively as long as the market is contestable \rightarrow less supernormal profits
- Inefficient firms cannot survive in a contestable market
- Suggestion for government: make markets more contestable by lowering BTE

Market Failure and Government Intervention

- Market sometimes fail to allocate resources efficient or achieve social goals
- Need for government intervention to mitigate areas in which market does not function well
- Arise from allocative inefficiency and income inequality
- Economic systems
 - Government planning: exclusive decision making by central authority (command economy)
 - Market forces: decisions made by demand and supply forces (free market)
 - Mixture: partly by government and partly through market forces (mixed economy)

Market Failure

Definition: failure of the free market to achieve allocative efficiency in accordance to wants and tastes of consumers and/or social goods like equity, resulting in overallocation or under-allocation of resources

Recall:

Allocative efficiency: society produces combination of goods and services that maximises its welfare, when

- Society produces on a point production possibility curve (PPC)
- Price = marginal cost of production, society's valuation on last unit is equal to the opportunity cost incurred producing it

Productive efficiency: all resources are fully and efficiently utilised or cost at given output is minimised, when

- Society produces on any point on production possibility curve
- Long run average cost at minimum, minimum efficient scale (society's perspective), lowest possible cost at each given output, any point on LRAC curve (firm's perspective)

Dynamic efficiency: innovation due to competitive pressures

Market Success

- a Productive efficiency: rational firms with aim to maximise profits have the incentive to keep costs low to minimise wastage
- b · Allocative efficiency
 - i. Demand reflects marginal benefit consumers derive from consuming the additional unit of good (reflected in price paid)
 - ii. Supply reflects the marginal cost of producing the additional unit of good

(reflected in price charged)

- iii. When price (consumer's benefit) equals marginal cost (producer's cost), allocative efficiency is achieved (P=MC)
- iv. This is because the value society places on last unit of good is equal to the opportunity cost of producing it, thus goods are desired by society in the right quantities
- v. Consumer's surplus and producer's surplus are also maximised
- vi. Assuming market success, allocative efficiency is achieved as marginal social cost (MSC), which is the marginal private cost of producers (MPC) is equal to the marginal social benefit (MSB), which is the marginal private benefit of consumers (MPB) (MSB=MPB)

Market Failure

- Unfortunately, market failure occurs, resulting in a deviation of MPB/MPB from MSB/MSC
- Market failure: free market fails to allocative resources efficiently
- Due to:
- 1. Externalities

Definitions

Externality: cost of benefits associated with the good spills over to third parties not directly involved in the consumption or production of the good; third parties are not compensated for costs or pay for benefits; consumers and producers ignore externalities due to the pursuit of self interest

- Private cost: Cost incurred by consumers/producers as a result of consuming/producing the good
- External cost: Cost spilled over and incurred by third parties not directly involved in consuming/producing the good
- Social cost: opportunity cost to the entire society
 - Social cost=Private cost+External cost
 - Marginal social cost=Marginal private cost+Marginal external cost
- Private benefit: Benefits derived by consumers/producers due to consumption/production of the good
- External benefit: Benefits spilled over and derived by third parties not directly involved in consuming/producing the good
- Social benefit: total welfare gained by society
 - Social benefit=Private benefit+External benefit
 - Marginal social benefit=Marginal private benefit+Marginal external benefit

Main reason: Pursuit of self interest

- Negative externality in production
 - Divergence in MSC and MPC due to pursuit of self interest
 - MSC=MPC+MEC, thus MSC>MPC, MSC curve to left of MPC
 - Market current produces at MPC=MPB=MSB (assume MPB=MSB, less confusion)
 - Socially optimal level is at MSB=MSC
 - Deadweight loss incurred (triangle points to socially optimal level of output)
 - This is because the benefits derived from producing Q_e-Q_s is lower than the cost incurred from producing that additional quantity
 - Case study: Waste dumping by chemical firms
 - Act: Dumping chemicals in the river (producers)
 - Third party: Fishermen
 - Negative external cost: No livelihood as they cannot catch fish or fish caught are poisonous, decrease in income
 - Not compensated for this cost (due to pursuit of self interest)
 - ◆ Marginal external cost incurred, MSC is lower than MPC, and society
 - overproduces the quantity of chemicals \rightarrow allocative inefficiency
- Negative externality in consumption
 - Divergence in MPB and MSB due to pursuit of self interest
 - MSB=MPB+MEB(negative), thus MSB<MPB, MSB curve to left of MPB
 - Market current produces at MPB=MPC=MSC (assume MPC=MSC, less confusion)
 - Socially optimal level is at MSB=MSC
 - Deadweight loss incurred (triangle points to socially optimal level of output)
 - This is because the benefits derived from producing Q_e-Q_s is lower than the cost incurred from producing that additional quantity
 - Case study: Smoking
 - Act: Smoking (consumers)
 - Third party: Public non-smokers
 - Negative external cost: Exposed to second hand smoke, health costs incurred due to illnesses resulting from this exposure
 - Not compensated for this cost (due to pursuit of self interest)
 - Negative marginal external benefit incurred, MSB is lower than MPB, and

society overconsumes the quantity of cigarettes \rightarrow allocative inefficiency

- Positive externality in production: Research and development, other firms may adopt improved technologies and reap higher profits
 - Divergence in MPC and MSC due to pursuit of self interest
 - MSC=MPC+MEC (negative), thus MSC>MPC, MSC curve to right of MPC
 - Market currently produces at MPC=MSC=MSB
 - Socially optimal level at MSC=MSB
 - Deadweight loss incurred (triangle points at socially optimal level of output)
 - This is because the fall in benefits when not consuming Qs-Qe is greater than

the fall in costs when not producing the additional quantity

- Case study: Research and development
 - Act: Research and development into improved technologies
 - Third parties: Other firms
 - Positive external benefit: Other firms can also adopt such technologies and benefit from using them via lower costs of production, higher profits etc.
- Other firms do not pay for this external benefit: due to pursuit of self interest
- Positive marginal external benefits with MSC<MPC, and society

underproduces research and development \rightarrow allocative inefficiency

- Positive externality in consumption: Vaccinations, others are less likely to catch the disease if one is vaccinated
 - Divergence in MPC and MSC due to pursuit of self interest
 - MSB=MPB+MEB, thus MSB>MPB, MSB curve to right of MPB
 - Market currently produces at MPC=MSC=MSB
 - Socially optimal level at MSC=MSB
 - Deadweight loss incurred (triangle points at socially optimal level of output)
 - This is because the fall in benefits when not consuming Qs-Qe is greater than the fall in costs when not producing the additional quantity
 - Case study: Vaccinations
 - Act: Vaccinations (consumers)
 - Third parties: Relatives and friends
 - Positive external benefit: Relatives and friends have lower risks of catching the disease if one is vaccinated, saving potential healthcare costs
 - Others do not pay for this external benefit: due to pursuit of self interest
 - Positive marginal external benefits with MSB>MPB, and society

underconsumes vaccinations \rightarrow allocative inefficiency

2. Demerit/Merit Goods

Definition:

- Demerit goods: goods that the government deems undesirable or harmful to society
- Merit goods: goods that the government deems desirable or beneficial to society

Main Reason: Imperfect information

- Demerit goods
 - Imperfect Information
 - Consumers overestimate private benefits or underestimate private costs
 - Thus there is overconsumption of the good if left to market forces
 - Case study: smoking: due to imperfect information, demand for smoking is greater than when there is perfect information, deadweight loss incurred
 - Negative Externality

- Consumers ignore negative externalities due to pursuit of self interest
- Overconsumption of goods, and deadweight loss to society
- Merit Goods
 - Imperfect Information
 - Consumers underestimate private benefits due to imperfect information on marginal private benefits
 - Underconsumption of the good if left to market forces
 - Case study: due to imperfect information on long term benefits, demand for primary school education is lower than when there is perfect information, deadweight loss incurred
 - Positive Externality
 - Consumer ignore positive externalities due to pursuit of self interest
 - Underconsumption of goods, deadweight loss to society
 - Excessive Income Inequality
 - Demand for goods based on effective demand (willingness and ability to pay)
 - Those who cannot afford to pay cannot consume the good even with perfect information
 - Thus demand is lower with excessive income inequality, deadweight loss
- 3. Public Goods

Definition

- Public goods: Goods that are non-rivalrous and non-excludable such that it is impossible or extremely difficult to exclude non-payers from enjoying the good
- Non-rivalrous: Consumption by one person does not affect the amount available for others, i.e. marginal cost of providing the good to the additional consumer is zero
- Non-excludable: extremely difficult to exclude non-payers from enjoying the good once it is produced, causing a free rider problem

Main Reason: non-excludability and non-rivalry

- Due to non-excludability and non-rivalry, causing a free-rider problem where no one is willing to pay, as marginal cost of provision is zero, i.e. market price is zero
- No producers are willing to produce anything at P=0, thus a missing market
- Supply=0 < MSC, thus allocative inefficiency
- Case study: Street lighting, national defense
- 4. Market Dominance

Definition

- Market imperfection: separation of market structure from perfect competition, with barriers to entry and economies of scale, resulting in price setting ability

Main Reason: profit maximising rationale

- Profit maximising firms in imperfect competitive markets set price at MC=MR, MC rising, which is lower than the price, since $P < MC \rightarrow$ allocative inefficiency
- These firms may make long run supernormal profits making it possible for them to spend more and X-inefficient, cushioned by extra profits \rightarrow productive inefficiency
- Lower output and raise prices \rightarrow capture consumer surplus at their expense (see no. 7)
- Exorbitant profits \rightarrow exacerbate income inequality (see no. 7)
- 5. Imperfect Information

Definitions

- Perfect information: complete knowledge on costs and benefits in consumers, producers and factor supplies
- Imperfect information (reality): ignorance or uncertainty of information that prevent economic agents from producing/consuming at socially optimal quantities

Main Reason: Lack or inaccurate information

- Merit/Demerit goods
 - Imperfect information about goods deemed harmful/beneficial to society due to overestimation/underestimation of private benefits and costs
 - Decision made by the government (paternalistic role)
- Persuasive advertising
 - Misleading information oversell benefits, causing overestimation of benefits and underestimation of costs, resulting in overconsumption
- Asymmetric information (not in syllabus)
 - One party has more information than the other → provide information in the best interest of one party over the other
- 6. Immobility of Factors of Production

Definitions

- Immobility of FOP: factor inputs are very slow to respond to changes in demand and supply

Main Reasons:

- Occupational immobility
 - Barriers to mobility of factors between industries of an economy
 - Results in some factors becoming unemployed or employed inefficiently, while others in high demand are overemployed and face shortages
 - Case study: workers made redundant in an industry face difficulties in re-

employment due to occupational immobility as they possess specific skills for that industry, a mismatch between skills of unemployed workers and skills required in industries requiring people result in market failure

- Occupationally mobile: can be used in many different industries (computers)
- Geographical immobility
 - Movement between locations due to
 - ♦ Family and social ties
 - Financial costs involved in moving
 - Regional variations in house prices
 - Differences in general cost of living
 - Discourages movement to areas with shortages of labour
- 7. Excessive Income Inequality

Definition

- Income inequality: Distribution of income and wealth in a population
- Wealth: accumulated value of both physical and financial assets of an individual
- Lorenz curve: Deviation of income from the "line of perfect equality", where the percentage of population earns the exact percentage of income
- Gini coefficient: The higher the coefficient (between 0 and 1), the higher the income inequality (Singapore: 0.478, compared to Norway: 0.24 and South Africa: 0.65)

Causes

- Competitive Markets \rightarrow wage inequality
 - Competitive markets heighten income inequality as price mechanism adjusts wages according to demand
 - Higher wages due to the industry being of higher demand
 - More educated and skilful
 - Inherent ability, such as entrepreneurial and investment talent
 - Higher productivity
 - Higher propensity to work hard
 - Generate higher returns for the company
 - Lower wages due to industry being of lower demand or require less training
 - No property resources
 - The aged, handicapped, sick
 - Minority group that is discriminated
- Monopoly \rightarrow wage inequality
 - Monopoly gains part of consumer surplus due to its price setting ability and market power i.e. firm gains at the expense of the consumer
 - It thus earns a higher income than the rest of society
- Unequal factor endowment (investment) \rightarrow non wage inequality
 - Those who possess large financial assets can invest in stocks, bonds, rents, and

interest to get large non-wage income due to timing and inheritance

- Those who receive less wages are less educated and have less ability to save and accumulate such assets
- Others \rightarrow wage inequality
 - Education: varying qualities of education
 - Globalisation: cheaper sources of unskilled labour (foreign labour) push down the wages of the low-skilled

Main Reason: Lack of dollar votes (ability to pay)

- Allocative inefficiency: Underconsumption due to lower effective demand
- Distributive inefficiency: Income unequally distributed in society
- Social issues: including crime and poverty related issues

Government Intervention

Rationale for Government Intervention

- 1. To attain efficiency in resource allocation
- 2. To attain equity in distribution in income and wealth among firms and consumers
- 3. Macroeconomic goals of employment, price stability and growth
- 4. Correct market failure when market fails to allocate resources efficiently

Public Goods

Mode of intervention: Direct provision

- Due to the non-rivalry and non-excludability, market price of public goods=0, thus no firms will produce the good, and a missing market exists
- Only feasible option is direct provision by the government
- Government funds the provision of public goods by taxes that it collects

- It needs to decide
 - What kind of public goods to provide
 - How much of the public good to provide
 - Only provides goods if total benefit > total cost
 - As providing each good has an opportunity cost (tax can be spend on others), it also only provides goods where greatest net social benefits are reaped
 - This is due to limited funds that can be used to provide public goods
- Benefits
 - The good that would otherwise not be provided (supply=0) is provided
 - Good is provided for free (don't need to pay for usage)
- Limitations
 - Difficult to calculate expected benefits, as good has no market price, so it is difficult to estimate demand (use surveys, votes etc)
 - Social welfare may be reduced as opportunity cost accompanies these decisions

Negative Externalities

Mode of intervention: Taxation

- A. Indirect taxation on negative production externality
 - a > Specific tax equivalent to the monetary value of the MEC levied (i.e. tax is the monetary valuation of the externality on society)
 - b
 MSC=MPC+MEC=MPC+specific indirect tax
 - c > Tax increased cost, supply falls, and equilibrium quantity falls to socially optimal
 - d
 Overallocation of resources is corrected, and the externality is internalised by the producers, deadweight loss is eliminated
- B. Indirect taxation on negative consumption externality
 - a > Specific tax equivalent to the monetary value of -MEB levied (i.e. tax is monetary valuation of the externality on society)
 - b Tax increases cost, supply falls, and equilibrium quantity falls to socially optimal
 - c MSC+indirect tax, supply curve shifts left to coincide with MPB at socially optimal level (note that MPB is still greater than MSB, just that MPC=MSC is shifted so that equilibrium with MPC is at Qs)
 - d
 Price increases, and demand falls, overconsumption is corrected and negative externality is internalised by producers and consumers, deadweight loss eliminated

Advantages

- A. Taxation provides revenue for the government to finance other projects
- B. With tax, market forces continue to operate, providing incentives for firms to innovate and adopt technologies to reduce external cost

Disadvantages

A. Difficult to accurately valuate the external cost, thus an overvaluation will cause equilibrium quantity to fall below socially optimal, while undervaluation will cause equilibrium quantity to remain above socially optimal (note: still better than before)

B. Constrained by PED, as high tax required to achieve effect for goods with high price inelasticity, which may be politically unpopular

Mode of intervention: Legislation and government regulation

- Controlling production or consumption activities through law and administrative rules
- Laws can be passed to prohibit production of waste, forcing producers to bear the cost
- Quotas can be mandated to set a standard or ceiling for production of goods
- Safety standards can be set to ensure production or consumption are done safely to minimise negative externalities
- A. Quota
 - a A limit on the quantity produced
 - b Quota is set at Qs which is lower than Qe since MSC=MPC+MEC
 - c > Firms are forced to produce Qs or risk harsh penalties
 - d
 This eliminates the deadweight loss and producers internalise the external costs, effectively correcting the overproduction
 - e Case study: Chemical waste quota limits the amount firms can pollute, previously overproduced due to ignorance of negative production externalities, including the fall in income to fishermen

Advantages

- 1. Simple to implement, as it jumps the step of setting right level of taxes to restrict output directly
- Greater certainty in achieving targeted output as it compels producers and consumers to reduce output levels to quota, which taxes may not always do

Disadvantages

1. Price mechanism is displaced and market forces are disrupted, and output level is no longer responsive to price changes, and is unable to perform its signaling

function on demand levels \rightarrow thus up to government to estimate socially optimal

output which is difficult as it does not have perfect information, thus quotas are only partially effective

- 2. Quotas do not create market based incentives for firms to lower external costs, thus external costs cannot be lowered
- 3. Enforcement is difficult and expensive as constant checking is required and sufficiently harsh penalties must be in place to avoid cheating
- 4. Government have imperfect information about specific types of pollutants and amounts emitted, and is thus unable to completely design effective rules
- B. Tradable Permits System
 - a Permits to pollute are issued by the government and are allowed to be traded in the market
 - b Government limits number of permits allowed in the market when distributing, thus demand for permits are perfectly price inelastic
 - c > After distribution, tradable permits can be traded in the market, those requiring

more permits needing to buy from other firms so as to pollute more, while those who are efficient and pollute less have excess permits to sell

d
 Buyers of permits are penalised for being unable to pollute less, while sellers are rewarded for being able to keep pollution low

Advantages

1. Cap on level of permissible pollution is able to reduce pollution levels to socially optimal levels, and this level can be altered easily by reducing the number of

permits available in the market $ightarrow {
m progressive reduction to eventually achieve}$

socially optimal level over time

- 2. More cost effective than laws as it is in the firms' interest to reduce pollution to sell excess permits for a profit
- Encourages promotion of greener and cleaner technology to reduce pollution as firms are incentivised to do so, thus encourages dynamic efficiency in this regard Disadvantages
- 1. If there are many polluters and pollutants, permit trading can be administratively costly due to requirement to vary permits based on pollutant type
- 2. Knowledge of efficient level of pollution, for each type of pollutant is required for effectiveness, this technical information is difficult to assess and highly debatable
- 3. No incentives for firms with great financial power to reduce pollution as they simply buy more permits
- 4. Competition may be reduced when smaller firms are unable to afford permits or afford investment into environmentally friendly technology
- 5. Political favouritism may occur in the distribution of permits to supporters of he government
- 6. Harsh penalties must be in place to prevent non-compliance and cheating
- C. Laws
 - a > Banning of production of good or production of wastage or setting of standards or certain producer/consumer actions
 - b Enforcement problems and constant checks required

Positive Externalities

Mode of intervention: Subsidisation

- A. Indirect subsidies on positive production externality
 - a Subsidy equivalent to the monetary value of the positive externality given to producers (subsidy is valuation of externality on society)
 - b MSC=MPC+subsidy
 - c > Supply curve shifts right to meet MPB=MSB at Qs, supply increases, price falls
 - d
 Quantity demanded increases to Qs, underproduction of good is corrected, positive externality internalised, deadweight loss eliminated
 - e
 Case study: Subsidies to firms to increase amount of research and development to increase production of research and development
- B. Indirect subsidies on positive consumption externality

- a Subsidy equivalent to the monetary value of the positive externality given to producers (subsidy is valuation of externality on society)
- b MSC/MPC+subsidy intersects MPB at equilibrium quantity Qs (note that MSB still > MPB, only that MPC shifts right due to subsidy to intersect at Q_s)
- c > Supply curve shifts right to meet MPB at Q_s, supply increases, price falls
- d
 Quantity demanded increases to Q_s, underconsumption of good is corrected, positive externality internalised, deadweight loss eliminated
- e
 Case study: Grants given to pharmaceutical companies to increase production of vaccinations, lowering the price to increase consumption of vaccinations, previously underconsumed due to ignorance of positive externalities (saving healthcare costs as one is less likely to catch a vaccinated disease)
- C. Direct subsidies on positive consumption externality
 - a Subsidy equivalent to monetary value of the positive externality given to consumers (subsidy is valuation of externality on society)
 - b MSB=MPB+subsidy intersects MPC=MSC at Q_s
 - c > Demand curve shifts right, price falls, quantity demanded increases to Qs, underconsumption of good is corrected, positive externality internalised by consumers, deadweight loss eliminated
 - d Case study: Active SG grants of \$100 to increase consumption of sports, previously underconsumed due to pursuit of self interest and ignorance of positive externalities of sports (better health, more efficient in work and contribute more to society)

Advantages

- A. Easily implemented to bring about increased in production or consumption, most effective method
- B. With subsidies, market can continue to operate, allowing producers and consumers to change their behaviour
- C. Flexible, as subsidies can be adjusted according to magnitude of problem
- D. Price of good is lowered for indirect subsidies \rightarrow increased consumer surplus

Disadvantages

- A. Difficult to accurately valuate the external benefit generated monetarily, overestimation of externalities lead to overconsumption of the good, an underestimation results in underconsumption of good (though still better than before)
- B. High government expenditure required to finance subsidy, requiring higher tax rates that may reduce incentive to work

Mode of intervention: Direct provision

- Good may be provided by the government, funded by taxes, free of charge or at a price
- Government may supplement private producers to increase supply to socially optimal
- Typically for merit goods with positive externality so large that warrants direct

provision

- MSB>MPB due to positive externality, and MPC=MSC
- MPC/MSC+government provision increases supply to intersect MPB at Qs (note that MSC still > MPC)
- Quantity of output increases to Q_s , price falls, externality is internalised and deadweight loss is eliminated

Advantages

1. Government has control over the supply, allowing it to control or influence the quantity, quality and affordability, thus maximising social welfare compared to a monopoly who prioritises profits over social welfare

Disadvantages

- 1. Production may be inefficient as employees have little incentive to keep cost at minimum due to lack of profit motive
- 2. Cost benefit analysis required to make decisions on which goods to provide, and it is difficult weight the cost and benefits accurately (due to non monetary and controversial costs and benefits) to decide on the level of support the good receives, which may result in allocative inefficiency due to oversupply or undersupply of the good, resulting in overconsumption or underconsumption
- 3. Involves use of tax revenues, opportunity costs incurred

Imperfect Information - Externalities

Mode of intervention: Education and campaigns

- Campaigns are used to inform the public and make them more aware, eventually changing their mindset about the external costs and benefits that occurs when they consume a good
- Although consumers are rationale and pursue their self interest, education and campaigns can help to change their mindset and translate into behaviour as the public, with more perfect information, can make a more informed decision
- Case study: smoking, education on harmful effects of smoking and second-hand smoking can spur action of non-smokers to ask for a smoke-free environment, at the same time prompting smokers to take their surroundings into consideration, ideally thus reducing consumption of cigarettes
- Case study: vaccination, campaigns on the positive effects of vaccination can change the mindset of people regarding its much higher benefits, prompting higher demand for vaccination, ideally

Advantages

1. Solves the problem by changing the mindset - solving the root cause of the externality by letting consumers consider third parties, thus removing the externality in the long run

Disadvantages

- 1. Expensive to carry out
- 2. Long term solution, cannot be used to solve short term, immediate problems
- 3. Success depends on receptiveness of the public as mindset are difficult to change

4. Imperfect information of the government and producers in disseminating correct and complete information; producers may hide information for its own purposes

Imperfect Information: Merit/Demerit Goods

Mode of intervention: Education and campaigns

- Imperfect information due to lack of complete information on private benefits and costs
- Government may provide information via campaigns, advertisements and other means; and may force producers to provide accurate information
- For merit goods, information on private benefits are provided, which when consumers understand, ideally consume more of the good, with demand with perfect information >

demand with imperfect information \rightarrow quantity demanded moves to Qs, resulting in

the elimination of the deadweight loss and underconsumption is corrected

 For demerit goods, information on private costs are provided, which when consumers understand, ideally consume less of the good, since demand with perfect information <

demand with imperfect information \rightarrow quantity demanded moved to Qs, resulting in

the elimination of the deadweight less and overconsumption is corrected

- Information about means to consume may also be provided if imperfect information results from the lack of knowledge on how to consume (e.g. Health check ups)
- Case study: primary school education (merit good)

Advantages and Disadvantages: see Imperfect Information - Externalities

Mode of intervention: Taxes and subsidies: see externalities Mode of intervention: Direct provision: see externalities

Market Dominance

Mode of intervention: Taxation

- A lump-sum tax (fixed cost) is levied on the monopoly to raise its average cost (AC increases)
- Monopoly's supernormal profits are eroded, now become tax paid to the government, which can be used in other purposes to fund or redistribute wealth
- If lump-sum tax is high enough such that AC crosses AR, monopoly makes only normal profits in the long run

Advantages

1. Reduces income inequality as supernormal profits paid to the government can be used to fund projects to health the needy

Disadvantages

1. Reduces incentive and ability to innovate, dynamic efficiency is compromised and may conflict goals of economic growth

Mode of intervention: Subsidisation

- A subsidy equivalent to the amount where MC+subsidy shifts to cut MR at Qs

- This increases the level of output to socially optimal and allocatively efficient levels, reduces consumer exploitation
- However, it is noted that at this point, P=MC (allocative efficiency), P>MC+subsidy
- Also note that the per-unit subsidy also shifts the AC curve downwards

Advantages

1. The output level of the monopoly is curtailed and increased to AE levels Disadvantages

1. This further increases supernormal profits of monopolies which may worsen income inequality

Mode of intervention: Price regulation

- Marginal cost pricing
 - Monopolies are forced to price their good at P=MC, thus achieving allocative efficiency
 - However, when P=MC, monopolies make a loss, and risk leaving the industry in

the long run \rightarrow this calls for the need for government subsidies or 2-part tariffs

(fixed cost monopolies can charge in addition to MC) so that monopolies can break even and make long run normal profits

- Average cost pricing
 - Monopolies are forced to price their good at P=AC, making normal profits in LR
 - It is noted that the quantity of output at P=AC is still lower than Q_s

Advantages

- 1. Monopoly's supernormal profits are completely eroded and better income equality is achieved
- 2. Price of goods are much lower than previously, increasing consumer's surplus
- 3. Allocative efficiency (MC pricing) or less allocative inefficiency (AC pricing)

Disadvantages

- 1. Dilemma of the regulator to achieve allocative efficiency but having to spend tax money to subsidise or just lower allocative inefficiency
- 2. Demand and cost curves can only be estimated, and producers may withhold or distort information, such as overstating costs to charge a higher price

Mode of intervention: Legislation

- Anti-Trust (anti-monopoly) laws
 - Introduced to curb collusive behaviour in oligopolies to achieve monopoly power or predatory pricing (price war) to force out competitors to gain market power
 - This includes prohibition for collusion, mergers and acquisitions, price-fixing or price wars, as well as to break up monopolies into smaller independent units
 - Case study: Competition Commission of Singapore: fine for anti-competitive behaviour
- Standards of Provision/Quality Control
 - Quality control of goods/services provided
 - Case study: Land Transport Authority to maintain standards of public transport
 - Case study: Public Transport Commission that regulates bus fares and quality of
bus services

- Case study: Government personnel appointed to board of governors in corporations like Changi Airport
- Deregulation to promote competition
 - Lowering of legal barriers to entry, funding for new entries to oligopolies
 - Case study: Telecommunications (MyRepublic)

Advantages

- 1. Competition is maintained such that firms compete with competitive prices and productive efficiency, avoiding income inequality (in collusion and price wars) and loss of consumer surplus (collusion, price fixing)
- 2. Profits are not concentrated in dominant firms in the industry, more even income distribution
- 3. Encourages innovation and dynamic efficiency

Disadvantages

- 1. Enforcement is difficult and expensive as constant checking is needed, increasing costs
- 2. Benefits of mergers such as greater economies of scale are prevented, which may actually lower prices and benefit society
- 3. Costs for enforcing the laws must also be included in cost-benefit analysis to decide on the socially desirability of regulation

Mode of intervention: Nationalisation

- Transfer in ownership from the private sector to government
- A government owned firm is different from direct provision, goods are sold at a price Advantages
- 1. Government ownership of firms ensure prices are lower and output is greater than what would result from a private firm

Immobility of Factors of Production

Mode of intervention: Government programmes and policies

- A. Occupational immobility
 - a
 Training schemes for the unemployed: Boosts human capital by equipping them with skills that can be transferred between industries
 - b Educational policies: improve skills and quality of workforce
 - c
 Subsidization of vocational training to firms: improve training opportunities for the unemployed improves occupational mobility
- B. Geographical immobility
 - a Relaxing immigration policies: allow for movement of FOP between areas with greater ease and less bureaucracy
 - b
 Increase awareness on job situations around the area
 - c > Provision of affordable amenities/reduce cost of rentals

Advantages

1. Curbs structural unemployment and loss of potential output resulting from it, improving supply-side potential and market efficiency that allows for fuller employment and higher rate of real economic growth, economy produces closer to the PPC curve

Disadvantages

- 1. Training of an efficient workforce requires a long time
- 2. Outcome is uncertain as it depends on acceptability of policies, which may be met with initial resistance
- 3. Significant government expenditure required which may be restricted by fiscal and reserves of countries

Excessive Income Inequality

Mode of intervention: Minimum wage/price floor

- Compulsory minimum wage above existing lowest wage Advantage

1. Higher wages for the lower income group, reduced income inequality Disadvantage

- 1. Efficiency loss due to deadweight loss to society
- 2. Hurts unemployed workers as it is now even more difficult to find a job

Mode of intervention: Demand and supply policies

- Increasing demand for low skilled labour by training them to upgrade their skills \rightarrow higher demand, higher wages
- Reducing supply for low skilled labour by restricting low skilled labour from overseas by levies on employing foreign workers and limiting issue of employment passes → lower

supply, higher wages

Mode of intervention: Other kinds of support (ALL ARE PROBLEMATIC)

- 1. Rent control (maximum price of rent): some benefit, some don't, and landlords may refuse to maintain their houses due to low rent rates
- 2. Price support on grain to help poor farmers: if the rich produce most of the grains, it won't help them much

Mode of intervention: Taxation

- Progressive tax system by income group (higher income, higher tax rates) help to redistribute income from rich to poor as taxes paid by rich individuals can be used to fund project to help the poor

Disadvantages

- 1. Disincentives for taxpayers paying higher tax, as they now have less savings, and less incentive to work hard: this reduces quantity of labour offered and reduce savings which affect investment and the production of new capital goods
- 2. Administration costs of redistribution programmes

Mode of intervention: Transfer payments

- Social security benefits for the poor
- Cash benefits: subsidy to a person's income, including child care benefits, pensions

- Benefits-in-kind: subsidy to goods and services by providing them at a lower price/free of charge, including free healthcare for the elderly

Mode of intervention: Long run policies

- Low levels of education and healthcare may prevent individuals from achieving higher incomes
- Providing education and healthcare more affordably tackles some problems of poverty and reduce it in the long run
- Reducing discrimination against minorities help them move to higher social status

Singapore: An Application Case Study

- 1. Traffic Congestion and Air Pollution
 - Nature: Negative externality in production of car journeys
 - Overproduction of car journeys above socially optimal levels due to pursuit of self interest
 - Private costs: petrol, wear and tear of car, maintenance
 - External costs (ignored): exhaust fumes (healthcare costs arising from respiratory

problems), traffic congestion (time is money \rightarrow lower productivity), noise pollution

(lower quality of life \rightarrow lower productivity)

- Third parties: pedestrians, other people driving, people living along roads
- Socially optimal level of output Qs is lower than current Qe as MSC>MPC
- MPC cuts MPB=MSB at Qe, thus there is overproduction of car journeys Policies
- A. Congestion Charges: Electronic Road Pricing (ERP) [TAX]
 - a
 Cost on drivers as a result of the congestion they cause to others when they drive
 - b
 Congestion charges work like a tax equivalent to the MEC electronically deducted whenever a car passes through a priced road
 - c Vith tax, producers decide on whether to travel, when to travel, how to travel or not travel at all by choosing alternative routes, alternative times, alternative modes of transport or not to travel at all
 - d Those who continue to drive pay the tax and enjoy a smoother journey
 - e External costs of producing car journeys are internalised by car drivers, overconsumption is corrected and deadweight loss is eliminated
 - f Advantages
 - i. Direct way of tackling congestion by tackling car usage
 - ii. Flexible as charges vary by time and duration, and can be adjusted to keep smooth traffic without underutilising the roads
 - iii. Fair way to target congestion as those who contribute to the congestion more pay more
 - g 🔻 Disadvantages

i.

- Public acceptance is difficult as road usage was previously free
- B. Output Control: Certificate of Entitlement (COE) [QUOTA]
 - a Quota limits car ownership and number of cars on the road as all car drivers must purchase a COE before he can drive
 - b Number of COEs released each year is determined by targeted growth rate to reduce traffic congestion and air pollution
 - c > By limiting supply to Qs, socially optimal level of output is achieved, and the overproduction of car journeys is corrected, deadweight loss is eliminated
 - d

 Advantages
 - i. Restricting quantity directly reduces air pollution by cars and less congested transport network
 - ii. Money collected from COE can be used to finance transport development to benefit the society at large
 - e · Disadvantages
 - i. A blunt measurement as congestion is due to car usage and not car ownership, congestion cannot be curbed effectively
 - ii. Perverse effect of increased car usage as due to high ownership costs, it is used intensively to make it "worth it"

- iii. High prices of cars is a politically unpopular move
- C. Quality Public Transport System [SUBSTITUTE]
 - a
 Attractive public transport system to act as an alternative for car usage
 - b Sy ensuring efficient, fast, comfortable and convenient public transport system, substitutability of public transport and cars is increased, reducing the demand for cars
 - c \sim Reduce demand for cars causes MPB=MSB to fall, cutting MPC (still higher than MSC) at Qs \rightarrow overproduction is corrected and deadweight loss eliminated
 - d · Advantages
 - i. Minimise road congestion and pollution
 - e > Disadvantages
 - i. Expensive
 - ii. Long time lag between building infrastructure and actual effects
- D. Comprehensive Road Network System [REDUCING EXTERNAL COST]
 - a Better connectivity of a more comprehensive road network provides drivers with wider choices of routes and help to divert traffic flows
 - b New roads built and widening of roads; computer and telecommunications to make road systems more efficient (such as providing information on how long it takes to go to a destination by a certain route, congestion warnings, accident warnings)
 - c > This reduces congestion, and also benefits public transport (buses)
 - d Advantages
 - i. Minimise road congestion
 - e · Disadvantages
 - i. Limited land space in Singapore cannot deal with root cause of problem due to increased affluence and growing population
 - ii. Expensive
 - iii. Long time lag between building infrastructure and actual effects
 - iv. May not reduce overall air pollution
- E. Conclusion: mix of government funding of infrastructure and private provision of public transport supplemented by pricing policies by price signals
- 2. Education

Nature: Positive externality in consumption of education

- Underconsumption of education below socially optimal levels due to pursuit of self interest and ignorance of positive externalities
- Private benefits: improvement in productivity and earnings, higher wages (by 10%), reduced inequality and improving welfare of lower income groups
- External costs (ignored): well-read and well-informed individuals (more polite and

more considerate citizens in a more gracious society \rightarrow reduced political instability

and crime rates), educated and skilled workforce (higher productivity and

economic growth), economic competitiveness (investment by MNCs), higher occupational mobility (reduced unemployment \rightarrow higher productivity)

- Third parties: Society at large
- Socially optimal level of output Qs is higher than current Qe as MSB>MPB
- MPB cuts MPC=MSC at Qe, thus there is underconsumption of education

Policies

- Basis: Meritocracy
 - Governing principle in Singapore where everyone should be allowed equal chance to succeed
 - Minimum level of education allow individuals to excel differently and contribute to society in different ways, creating greater efficiency and productivity
 - Thus the basis of education policies is assessable and available education to all and not limited to dollar voters
- A. Subsidy
 - a Heavy subsidisation of education as a whole
 - b Free primary school education as basic literacy is essential to the development of citizens who can work, think, adapt and function well
 - c Heavily subsidised secondary school education as it is still instrumental in achieving greater and more sophisticated economy in the 21st century
 - d Smaller subsidies for higher education as external benefits are not as wide as private benefits, and more Singaporeans are willing to pay; however, the importance of higher education in driving a global city calls for subsidies
 - e Subsidisation increases purchasing power of consumers, and MPB+subsidy=MSC, thus intersecting MPC=MSC at Qs
 - f
 Underconsumption is corrected, externality internalised and deadweight loss eliminated
 - g > Disadvantage: difficulty in assessing the amount of subsidy to be awarded as the external benefits of different levels of education is controversial and debatable
- B. Legislation
 - a
 Compulsory Education Act (2003) mandates primary school education until Primary 6
 - b Advantage: Enforcement not an issue as Singapore is a small country
 - c > Disadvantage: A more conciliatory approach can be taken to council troubled families who don't want to send their children for primary education may be more effective
- C. Direct provision
 - a > To a certain extent, the government decides on number of teachers and number of places for children in schools, thus education is not completely left to market forces
 - b
 Disadvantage: The government has to gauge the demand for education to get the right number of school places and teachers each year to avoid

shortages and surpluses or teachers

- D. Conclusion: a mixture of free market and government intervention involving significant subsidies are supplemented by the Compulsory Education Act to ensure affordable and accessible education to all
- 3. Healthcare

Nature: Positive externality in consumption of healthcare

- Underconsumption of healthcare below socially optimal levels due to pursuit of self interest, ignorance of positive externalities and income inequality
- Private benefits: improvement in productivity due to better health, longer lifespan, more fulfilling lifestyle, less healthcare costs
- External costs (ignored): healthier and fitter individual (more productive

 \rightarrow increased economic efficiency), healthier person (less costs and sadness borne

by family and friends)

- Third parties: Society at large, family and friends
- Socially optimal level of output Qs is higher than current Qe as MSB>MPB
- Income inequality limits some ability to consume healthcare
- MPB cuts MPC=MSC at Qe, thus there is underconsumption of healthcare Policies
- Basis: Primary care and hospital care
 - Primary healthcare: preventive healthcare and health education, less imperfect information and less severe market failure, treatments are less

complicated, and lower costs \rightarrow left to market forces (80%)

■ Hospital care: complicated, supplier-induced demand problem → government practices supplementary direct provision (80%) to manage healthcare costs

A. Government Regulation

- a Regulation of number of public hospitals, hospital beds and doctors
- b Ministry of Health determines which services are subsidised: cost-effective treatments vs non-essential like cosmetic surgery
- c
 Coordination of specialist disciplines and services and introduction of technology at public hospitals prevent wasteful duplication of services
- d
 Restructured government owned non-profit companies give hospitals greater flexibility over their operation, but at the same time cost-control and block budgets to each hospital (based on patient load) incentivises hospitals to work efficiently
- B. Means testing
 - a

 To focus limited resources for needy Singaporeans by channeling it to those who need it the most
 - b Classes of hospital wards (A, B1, B2, C) with different levels of subsidies for different income groups
 - $c \mathrel{\scriptstyle{\sim}}$ This allows those with lower incomes to afford healthcare, increasing

effective demand \rightarrow thus demand increases to meet MPC=MSC at Qs, and

underconsumption is corrected, external benefits internalised and deadweight loss eliminated

- d
 Advantage: shares limited class B2 and C subsidies in the fair manner, by targeting subsidies at lower income groups
- e Disadvantage: higher income groups may be attracted to class B2 or C wards even if they can afford the higher wards, even if they receive lower subsidies
- C. 3M Framework
 - a Medisave
 - i. Compulsory saving scheme of part of an individual's savings are used solely for the financing non-primary healthcare by individual or family
 - ii. May be used to may inpatient accommodation, treatment and chronic illnesses
 - iii. Individual's own personal savings and incentivises economising on healthcare
 - iv. Government intervention to limit amounts that can be withdrawn to prevent premature depletion
 - b Medishield
 - i. Catastrophic medical insurance scheme to complement Medisave as these illnesses that require prolonged expensive medical treatment can cause severe financial difficulties
 - ii. Involves risk-pooling of payments by Medisave accounts in the form of a medical insurance, and is an opt-out scheme
 - iii. Scheme is made administratively less costly and increased risk pooling lowers premiums paid
 - c Medifund
 - i. Safety net for the very poor who may lack Medisave and family support
 - ii. State-established endowment fund built from budget surpluses to finance hospitalization, hospice and rehabilitation services
- D. Conclusion
 - a

 Pressures on government to spend more on healthcare due to an aging population, increasingly affluent lifestyles and advancement in medical technology
 - b To prevent healthcare costs from escalating, improvements have been made such as Medishield Life to cover Singaporeans against huge bills for life
 - c > Prevention is still cheaper than cure, thus disease prevention and healthy lifestyle promotion should be given due attention

Government Failure

- Government fails when government intervention worsens the situation, increasing market distortions and reducing economic efficiency and welfare
- Due to
- 1. Imperfect information
 - a Impossible for governments to know true preferences of citizens, thus policies may be implemented without full information or complete cost-benefit analysis
 - b Poor information on prices, valuation of goods, long term benefits and behavioural changes can result in misguided policies
- 2. Bureaucracy and inefficiency
 - a $\boldsymbol{\cdot}$ Cost of administration and enforcement: administrative costs in people and

material resources involved increases with increasing outreach and detail \rightarrow

reduced welfare if cost of implementation and enforcement is higher than the benefits of the policy

- b Time lags: time between government recognising market failure, decide on a policy and implementing it may have given rise to acute problems that require radical measures, or different circumstances that necessitate other measures
- c > Shifts in government policies: economic efficiency may suffer if government intervention changes too frequently as industries cannot plan ahead and allocate resources efficiently
- d
 Law of unintended consequences: unanticipated behaviour of firms and consumers such as ignorance, error, deliberate circumvention of rules or even

developing black markets \rightarrow add to financial costs of government programmes

- e > Disincentive effect: attempts to reduce income inequality by taxes may reduce incentive to work, reducing productivity, or even migration or individuals and firms
- f > Policy myopia: short term "quick fixes" may worsen problem in the long run
- g Political self interest: pursuit of self interest of politicians can cause resources to be allocated inefficiently, as they may push for investments and policies benefiting themselves but no society at large

Introduction to Macroeconomics

Definition: Branch of economics that studies economic aggregates, such as the overall level of prices, output and employment in the economy (focuses on national totals, not individual households, firms etc)

Key Macroeconomic Aims

Internal Stability	External Stability
Sustained economic growth	Sustainable balance of payments position
Actual: actual growth in GDP accopanied by	Aim: sustainable BOP position (no
Potential: maximum possible growth after	chronic surplus/deficit)
fully utilising all resources Aim: high and sustained EG in LR	Significance: unstable exchange rate $ ightarrow$
Significance: increased level of	adverse effect on international trade
consumption, easier redistribution of	
incomes to the poor	
Low inflation	Aim: Stable foreign exchange
Aim: low and stable inflation (as per CPI)	Significance: avoid large fluctuations
Significance: stable economy, aid in	reduce uncertainty
decision making and maintain purchasing	
power	
Low unemployment	
Aim: low unemployment rate	
Significance: reduce social problems,	
waste of human resources and drain on	
government benefits	

Circular Flow of Income



Withdrawals/Leakages (W): flow out of economy

Injections (J): flow into the economy

National Income (Y): factor payments including wages, interest, rent and dividends

Key Macroeconomic Indicators

- 1. National Income/Economic Growth
 - a Gross Domestic Product (GDP): value of all final goods and services produced within a given country within a given period of time
 - i. Calculated via national income, output or expenditure approach
 - ii. GDP=C+I+G+(X-M)
 - iii. National product=National income=National expenditure
 - iv. Measure economic growth:(GDP current-GDP previous)/(GDP previous)x100%
 - v. Calculate at previous year's market prices: eliminate inflation (real growth)
 - vi. Comparing between countries: GDP/total population (per capita)
 - b Gross National Product (GNP): value of all final goods and services produced by domestic factors of production during a given period of time
 - c
 Net National Product: NNP=GNP-depreciation
 - d
 Disposable income: Income available for spending after taxes
- 2. Inflation: percentage change in price level from year to year
 - a Consumer Price Index (CPI): (CPI current-CPI previous)/CPI previous x100%
 - i. Measures change in price of fixed bucket of goods and services over a period of time
 - ii. Base year as index "100", other years relative to it
 - iii. Limitations:
 - 1. Substitution bias: prices do not change proportionately, consumers switch to subtitutes
 - 2. Quality adjustment: CPI understate quality changes
 - 3. New products: such prices tend to decline sharply in first years
- 3. Unemployment: >15years without work but were available for work and actively seeking a job (but cannot find one)
 - a Labour force: >15 years who are employed or unemployed (economically active)
 - b Economically inactive: not working, did not have a job to return to and were not looking for a job (e.g. housewoves, retirees, students)
- 4. Balance of Payments (BOP): flows of money between residents of a country and the rest of the world
 - a Current Account: goods balance (export and import of physical goods), service balance (export and import of services), income balance (wages, interests, profits, rents), current transfers (transfers between governments and international organisations)
 - b
 Capital Account: flow of funds associated with the acquisition or disposal of fixed assets
 - c > Financial Account: direct investmand and portfolio investment (hot money)

Singapore Economy

- Rapid growth, real GDP grew at 8% per annum, per capita rose 12-fold
- Low inflation averaging 2% per annum
- Low unemployment averaging <3% for past decade
- Huge BOP surplus

Standard of Living

Measurements

- Material welfare: Real GDP per capita (adjusted for inflation by using base year and population growth by dividing by total population)
- Non material welfare: life expectancy, literacy rate, working hours per week, pollution standard index, crime rate
- Limitations
 - Exclusion of non-marketed activities: non-paid housework, volunteering etc
 - Non inclusion of underground economy: illegal (drug dealing, prostitution) and legal (private tuition) activities
 - Composition of GDP: production does not equal consumption, for e.g., investments do not affect current standard of living, but increases future standard of living
 - Income distribution: not everyone has increase in standard of living with increase in real GDP per capita
 - Leisure time: GDP increases, but if due to increase in working hours, material SOL may increase at the expense of fall in non material SOL
 - Environmental degradation and resource depletion: environmental side-effects not recorded, eg pollution of air and water, deforestation, ozone depletion

Comparing standard of living between countries

Measurements

- Material welfare: PPP-adjusted GDP per capita (adjusted for exchange rates by using same currency, purchasing power by using how much goods can be bought with fixed money, and population size by dividing by total population)
- Non material welfare: same as above
- Limitations
 - Differences in accounting procedures:
 - no internationally agreed method so not every country uses the same basis for calculation
 - Much more marketed activities in developed than developing activities, as many people in developing countries are self sufficient
 - Differences in size of underground economy
 - Difference in composition of GDP
 - Expenditure on certain goods likely to be greater than others, so if countries consume those more based on needs or habits (climate, culture), does not

imply higher standard of living

Example: heaters required in cold countries while hot countries use fans

Alternative Measures

- 1. Human Development Index (HDI): incorporates life expectancy, literacy rate and PPPadjusted GDP per capita
- 2. Measure of Economic Welfare (MEW): adds leisure, unpaid housework and other nonmarketed activities (difficulty in assigning values to these activities)
- 3. Index of Sustainable Economic Welfare (ISEW): accounts for inequality, household production, environmental costs, resource depletion and damage
- 4. Happiness Index
- 5. GINI Coefficient: inequality

Income and Employment Determination

Aggregate Demand Model

Definition: total level of spending on domestically produced goods and services in an economy at each price level

- AD = C + I + G + (X M)
- A change in general price level or <u>real</u> (note: already accounted for inflation) national income leads to a movement along th AD curve
- AD curve is downward sloping due to
 - Wealth effect: price increase \rightarrow purchasing power decrease \rightarrow C falls
 - Interest rate effect: interest rate increase →cost of borrowing increase, rate of

returns for investments fall \rightarrow C and I falls

■ International substitution effect: domestic prices increase →relatively more

expensive to foreign goods \rightarrow foreign demand for X falls, domestic demand for M

increases \rightarrow X falls, M increases, (X-M) falls

- AD curve shifts due to
 - Changes in expectations
 - Expectation of jobs and profits: optimism of expanding economy \rightarrow expected increase in jobs, higher income and bonuses \rightarrow more willing to consume and invest \rightarrow C and I increase at every price level \rightarrow AD shifts right

- Expectation of changes in real wealth: expect real wealth to increase \rightarrow "feel" richer \rightarrow C and I increases at every price level \rightarrow AD shifts right
- Expectations of changes in price level: expect inflation rate to increase \rightarrow spend more now \rightarrow C increase at every price level \rightarrow AD shifts right
- Changes in government policies
 - Government spending: government spending increase \rightarrow stimulate higher demand \rightarrow C, I, G increase at every price level \rightarrow AD shifts right
 - ◆ Taxation policies: personal income and corporate taxes increase → disposable income and after-tax profits fall → C and I falls at every price level → AD shifts left
 - ◆ Interest rate policies: interest rates increase → $\frac{1}{1000}$ cost of borrowing falls, return on investment increases → C and I increases at every price level → AD shifts right
- Changes in world economy
 - Income level of other countries: foreign income levels increase \rightarrow ability to buy domestic exports increase \rightarrow demand for X incease \rightarrow X increases at every price level \rightarrow AD shifts right
 - ◆ Price levels of other countries: foreign inflation rate higher →domestic goods become relatively cheaper →domestic demand for M falls, foreign demand for X increase → X increases and M falls at every price level → (X-M) increases at every price level → AD shifts right
 - ◆ Foreign exchange rates: domestic currency appreciates →domestic goods become relatively cheaper →domestic demand for M falls, foreign demand for X increase → X increases and M falls at every price level → (X-M)

increases at every price level \rightarrow AD shifts right

• Changes in national income: recession \rightarrow income falls \rightarrow ability to consume and

invest falls \rightarrow C and I falls at every price level \rightarrow AD shifts left

Aggregate Supply Model

Definition: total output of goods and services that firms as a whole would like to produce and sell at each general price level

- AS is shaped into three ranges
 - Horizontal/Keynesian range
 - Real national output is much lower than full employment output level
 - Implies significant unemployment, and spare capacity
 - Thus production can be increased without incurring higher additional costs
 - AS is perfectly price elastic
 - Upward sloping/Intermediate range
 - Resources become more scarce, firms bid up prices to secure goods
 - Cost of production increases, leading to higher prices
 - Thus increasing production is accompanied by increasing general price level
 - Vertical/Classical range
 - At full employment, output can no longer rise as all resources used
 - If AD rises, only general price levels will rise
 - AS is perfectly price inelastic
- AS shifts due to non supply factors (aggregate supply shocks) that affect cost of production (upward/downward shift) or productive capacity (left/right shift) or both
 - Changes in input prices:
 - Rise in input prices \rightarrow cost of production increases \rightarrow AS curve shifts upwards
 - ◆ Long term depletion of resources → productive capacity falls → AS curve shifts leftwards
 - Overall inward shift of AS curve
 - Changes in expected rate of inflation
 - \blacklozenge Inflation rate expected to increase \rightarrow prices expected to increase \rightarrow

withhold goods to sell later at higher price \rightarrow supply of goods fall \rightarrow AS curve shifts upwards

igoplus Trade unions negotiate for increase in wages to cope with rising prices imes

labour costs rise \rightarrow COP increases \rightarrow AS curve shifts upwards

Government policies to firms

- Subsidies to firms \rightarrow COP falls \rightarrow AS shifts downwards
- Changes in quality of labour input
 - Increase in education and training levels \rightarrow Increase in skillset of people \rightarrow

economy's productivity increases \rightarrow Productive capacity increases \rightarrow AS curve shifts rightwards

- ♦ (assume that increase in productivity outpaces increase in wage)
 Productivity increases → cost per unit output falls → COP falls → AS curve shifts downwards
- Overall an outward shift of the AS curve
- Changes in quantity of resources
 - ◆ Discovery of new resources → productive capacity increases → AS curve shifts rightwardds
- Government policies to workers
 - ♦ Subsidy of worker skills upgrade →productivity increases →productive
 capacity increases → AS curve shifts rightwards

◆ (assume that increase in productivity outpaces increase in wage)
 Productivity increases → cost per unit output falls → COP falls → AS curve shifts downwards

- Overall an outward shift of the AS curve
- Changes in technology
 - Improvements in technology \rightarrow able to produce more output from given

resources \rightarrow both productive capacity and COP falls \rightarrow AS curve shifts

outwards

AD/AS Equilibrium

The market readjusts itself via the market adjustment mechanism to reach an equilibrium, where AD=AS

When AD exceeds AS, there is a shortage, and consumers bid up prices to secure the goods, while firms offer higher prices to increase profits. This has an upward pressure on the general price level, causing it to increase. As prices rise, firms employ more factors of input and labour, thus national output rises, represented by an increase in RNY. This occurs until the market reestablishes the equilibrium and the shortage is eliminated.

When AS shifts upwards/downwards due to a rise/fall in production costs, a shortage/surplus is created, which has an upward/dowward pressure on GPL. As GPL

increases/falls due to the wealth, interest rate and international substitution effects, spending on goods and services (ie AD) falls/increases, represented by a movement along the AD curve. GPL continues to rise/fall until the disequilibrium is elimintated. Equilibrium level of national income falls/increases, negative/positive actual growth occurs.

When AS curve shifts outwards/inwards due to rise/fall in productive capacity, this contributes to negative/positive potential growth. The full employment level of national income, Y_f increases/falls.

Aggregate Expenditure Model

Definition: planned expenditure by the various sectors of th economy at each income level

Consumption Expenditure

Consumption Function = a + bY, where a represents autonomous consumption (not affected by income changes), and bY represents induced consumption (affected by income changes) Average propensity to consume (APC)=proportion of income spent on consumption, C/Y Marginal propensity to consume (MPC)=proportion of extra income spent on consumption

Savings Function = Y - C, ie income that is not spent

Average propensity to save (APS)=proportion of income saved, S/Y Marginal propensity to save (MPS)=proportion of extra income saved=1-MPC

Investment Expenditure

- Acquiring new fixed capital assets (fixed capital formation)
- Accumulation of inventories (changes in physical stocks)
- In this model, investment is assumed to be autonomous

Investment Function

Marginal Efficiency of Investment (MEI) theory

- Inverse relationship between interest ratse and investment
- Definition: Expected rate of return/income/profits of an additional unit of investment
- Interest rates refer to the cost of borrowing
 - For each firm, there are various opportunities of varying MEI/rate of returns
 - Downward sloping MEI curved based on highest to lowest rate of returns
 - Investment would only be undertaken if cost of investment, including interest rates, are less than or equal to the returns/profits
 - Change in interest rates leads to a movement along the MEI curve
 - Interest rates fall relative to MEI→ number of profitable projects increase \rightarrow investment increases
- Non interest rate factors cause a shift in the MEI curve
 - Business confidence and expectations: if businessman lack confidence, investment will be low no matter how low the interest rates
 - Cost and availability of capital goods: if costs fall, investment remain profitable even

at higher interest rates, MEI curve shifts right

- Government policies: taxes reduce after-tax profits, making investment less profitable even at lower interest rates, MEI curve shifts left
- Changes in technology: technological advancement make investment more attractive, shifting MEI curve rightwards
- Rate of change of income: the larger the increase in income, the more investment needed to produce more goods (accelerator effect \rightarrow for induced investment)

Government Expenditure and Net Exports: assumed to be autonomous

The Multiplier Effect

- The multiplier effect, or k effect, refers to the change in national income on the change in autonomous expenditure: it is observed that there is a more than proportional change
- k = 1/[MPS + MPT + MPM] = 1/[1-MPC]
- Multiplier Effect: An increase in autonomous demand will lead to a more than proportionate increase in the equilibrium level of national income, ceteris paribus
- Principle: One person's spending is another person's income, and income induces further spending
- Assumption: Sufficient spare capacity, constant general price level and constant technology
- When autonomous AD increases, inventories fall and firms step up production by employing more factors of input in the next time period
- At the same time, the initial increase in AD stimulates further induced consumption, which is repeated many rounds as further increases in income further increases spending
- The multiplier process eventually stops due to the presence of withdrawals, as not all the increase in income is spent, some are saved, taxed and spent on imports
- Eventually when the cumulative induced withdrawals equals the initial injection of autonomous demand, the multiplier process stops
- Hence, an initial increase in autonomous aggregate demand leads to many more rounds of increase in induced consumption, causing a more than proportional increase in real national

income \rightarrow actual growth is achieved

- Whether the full effect of the multiplier can be experienced depends on the state of the economy
 - At sufficient spare capacity, the more than proportionate increase in AD is not accompanied by increase in GPL, full effects of the multiplier is felt
 - At upward sloping part of AS, there is a shortage of scarce resources: firms incur additional costs as they try to step up production, causing GPL to increase: the increase in GPL has a dampening effect on the multiplier effect
 - At full employment, firms cannot respond to increase in AD by stepping up production, only GPL increases, no actual growth and very high inflation
- Limitations
 - Smaller k than imagined as some increase in output comes out as higher prices instead due to insufficient spare capacity

- Time lag: multiplier effect takes months as each successive induced consumption takes time
- Size of multiplier depends on MPS, MPT, MPM, in the Singapore context,
 - High MPS: compulsory saving schemes such as the Central Provident Fund (CPF)
 - Low MPT: relatively low corporate and personal income tax
 - High MPM: very open economy, lack of natural resources, dependent on imports
 - Thus, relatively low multiplier

Macroeconomic Aims and Issues

Overview:

Aims: Sustained economic growth, low and stable inflation, low unemployment, healthy BOP position, stable exchange rates

Problems: Recession, high unemployment, high inflation, persistent BOP surplus or deficit Management: Demand management (fiscal monetary [interest rate and exchange rate] policies) and supply management (supply side policies)

1. Economic Growth

Definition: increase in gross domestic product over a period of one year

Aim: Sustained economic growth, actual growth accompanied by potential growth

- Actual Growth can be seen by a rightward shift of the AD curve, downward shift of the AS curve or a movement of a point towards the production possiblity curve
- When AD shifts right, RNY increases due to increases in demand prompting firms to increase production and inventories in the next time period, RNY increases more than proportionately due to the multiplier effect
- When AS shifts down, RNY increases due to fall in COP encouraging firms to step up production
- **Potential Growth** can be seen by a rightward shift of the AS curve or a outward shift in the production possiblity curve
- When AS curve shifts rightwards, full employment level of NY increases
- Rapid AD curve will come to an end as spare capacity will eventually be used up: to ensure sustained economic growth, actual growth must be accompanied by potential growth, rightward shifts of both the AD and AS curves

Benefits

- Higher standard of living:
 - More goods and services are made available for consumption: material SOL improves
 - More income→can afford better services eg healthcare, eduction: non-material SOL

improves

■ More income→save more→supply of loanable funds increase→cost of loanable

funds fall \rightarrow interest rates fall \rightarrow by MEI, investment for capital formation increases:

future SOL improves

- Better income redistribution
 - More income→more tax (progressive tax system)→more government revenue→can be redistributed to the poor through transfer payments, subsidies, welfare programmes→income inequality falls, alleviate poverty
- Decrease in demand deficient unemployment
 - Increase in AD→increase production of goods→derived demand for labour increases

 \rightarrow cyclic unemployment falls (also reduce social problems like crime)

Costs

- Income inequality
 - The wealthy have the savings for capital accumulation, the talented and capable gain the most materially \rightarrow increase in income not shared fairly in population
 - SOL falls for some people, unequal access to opportunities reduce social cohesion, and the poor are more disadvantaged in health, education and job security
- Environmental costs
 - Higher costs imposed on environment due to artificial needs creating unnecessary waste
 - Spillover costs threatent the ecological system, e.g. Deforestation, greenhouse effect, noise and air and water pollution, overhunting, habitat destruction, ozone depletion
- Overheating economy (demand pull inflation)
 - Rapidly accelerating rates of EG can overheat the economy, causing scarcity in resources and inflationary pressures
 - Rapidly rising demand cause rise in costs of raw materials, energy and wage costs \rightarrow

negatively affect international trade (price competition), profits and growth.

Weak/Negative Economic Growth

Definition (recession): economy experiences negative growth for at least 2 consecutive quarters in a year, i.e. Lack of aggregate demand - causing available inputs to lie idle, and demand deficient unemployment

Causes

(demand factors)

- Low rate of investment
 - Insufficient replacement of obsolete capital with technologically advanced plant and

equipment

- Insufficient increase of capital stock available to each worker (capital deepening) to increase productivity of labour
- Production of consumer goods over capital goods (fall in future SOL)
- Low savings rates causing fall in loanable funds available \rightarrow interest rates increase \rightarrow

investment falls

- Low incomes (developing countries)
- ◆ Policies to decrease interest rates→decrease return on savings→reduced

incentive to save/decreased opportunity cost of saving—savings fall

- Erosion of traditional beliefs in the virtues of saving
- ◆ Liberalisation of financial sector →ease of obtaining unsecured credit→ reduced
 dependency on savings
- ◆ Increase in social security benefits→reduce dependency on savings
- ◆ Expectations of high prices in the future→spend now→save less
- High income tax \rightarrow lower disposable income \rightarrow less ability to save
- Lack of investor confidence who form expectations based on current state of the economy and the political situation
- High interest rates (as explained above), based on MEI theory
- External shocks
 - Global recessions affect trading partners→fall in partners' incomes→fall in demand

for $X \rightarrow X$ falls \rightarrow AD falls (assumption: X are normal/luxury goods)

- Political situation
 - Corruption and embezzlement of funds hinder economic progress
 - Improper law enforcement and crime prevention → bad business climate and increase
 - business costs, increase uncertainties
 - Unsound or unestablished property rights, contracts, policies and land and tax reforms
 - Political instability (coup, wars)→increase uncertainty→decrease business

confidence \rightarrow decrease in FDI, in forms of factories and machines \rightarrow decrease in I

(supply factors)

- Lack/fall in natural resources
 - Being endowed with natural resources does not guarantee growth→ must know how

to exploit entrepreneurship, skilled labour and capital (Singapore, HK, Switzerland)

- But still, fall in natural resources→reduced productive capacity→fall in potential growth, restrict actual growth
- Lack of labour or human capital (knowledge/skills that workers gained through education, training and experience)
 - Insufficient quantity of labour (need to import labour like Singapore)
 - Low quality of labour, not well trained, educated, healthy or motivated; occupational and geographically immobile
 - Insufficient pioneering, risk taking entreprenears
 - Main obstacle is the opportunity cost of diverting resources to improving the national education system
 - Note: benefits of training and education can only be realised in the long run
- Lack of technological advancement
 - Discovery and innovation through research and development, such as better or new production methods, improvements in design and performance of factor inputs, better organisation and management and more efficient transport and communication
 - Technological advancement cuts the average cost of a product as it can produce it faster with less resources and increase productive capacity as resources can produce more outputs
 - Also opens up opportunities for expansion to other industries, setting up a chain reaction
 - Research and development also has risks and depends on outcome and success
 - Require government support (eg Productivity and Innovation Credit, PIC)

Costs

- Unemployment and lost output
 - Firms produce less due to falling demand→employ less workers→cyclical UnE
- Lower savings and consumption
 - Less income→less consumption
 - Less income→less savings→less loanable funds→less invesmentt by MEI theory
- Lower investment and long term growth
 - Lower expectation of future profits due to recession→Lower investor

 $confidence \rightarrow investment falls \rightarrow capital formation falls \rightarrow reduced potential growth$

2. Inflation

Definition: sustained increase in general price level over time

- Inflation can be mild (single digit), galloping (double-triple digit) or hyper
- Disinflation: falling inflation rate
- Deflation: falling general price level (negative inflation rate)

- Stagflation: rising prices coupled with no or negligible real GDP growth
- Anticipated inflation: households and firms are able to accurately predict inflation, can take steps to protect themselves accordingly

- Unanticipated inflation: unpredictable, households and firms make errors Causes

- Demand pull inflation
 - Persistent rise in aggregate demand: inflation persists when AD rises continuously
 - Rise in demand due to increase in C, I, G, X or combination (eg cuts in taxes, increase government expenditure, increase in income levels of other countries)
 - Current spending>current production → firms draw on existing inventories
 - Shortage as inventories run down \rightarrow firms then increase production in the next time

period->lack of spare capacity-> compete for scarce resources, bidding up factor

costs \rightarrow cost of production increases \rightarrow GPL rises (how much it rises depends on

extent of scarcity) until shortage is eliminated at a higher price and RNY level

- If society expects prices to increase, they will spend more now, causing AD to increase, hence causing AD to increase further
- This is known as booming economy with rising inflationary expectations
- Cost push inflation
 - Rising production costs during periods of low unemployment, caused by continuous upward shifts of AS curve
 - As COP increases, firms are willing and able to produce less output at each price level
 - Shortages at prevailing price level cause firms to raise prices \rightarrow spending falls due to

wealth, interest rate and international substitution effect until shortage is eliminated

- If prices are expected to increase further, trade unions will push for higher wages to cope with rising prices, increasing labour hence COP further, AS rises further
- Wage push inflation: trade unions negotiate for higher wages that are higher than increase in productivity→unit labour cost increases →AS increases, GPL rises
- Raw materials push inflation: shortage of raw materials→firms compete for scarce

resouces→increase in COP→AS rises, GPL rises

■ Import-induced inflation: supply shortages or weak exchange rate→price of imported

raw materials increase/become more expensive in domestic currency→ COP

increases \rightarrow AS rises, GPL falls

Profit push inflation: monopolies and oligopolies raise prices to increase profit

margins due to price inelastic demand

■ Tax push inflation: increase in taxes→fall in after tax profits→raise prices to maintain

profit margin→AS rises, GPL falls

Structural inflation: structural rigidities such as immobile labour, slow movement of resources into sector and institutional rigidities can cause supply shortages even with

spare capacity \rightarrow firms bid up prices to secure FOP \rightarrow COP rises \rightarrow AS, GPL rise

- Combined effects
 - Difficult to separate the two if both occur concurrently
 - Government policies like higher government expenditure and lower taxes may be used to counter rising COP, GPL and falling AD to stimulate higher AD, but this may cause prices to rise further

Benefits (low, stable, anticipated inflation)

- Promotes actual EG
 - Expect prices to rise in the future \rightarrow consume more now \rightarrow C increases \rightarrow AD increases
 - Expect sales to rise in the future→firms increase investment to cope with future

demand \rightarrow I increases \rightarrow AD increases

- AD increases more than proportionately by the multiplier effect, actual growth
- Promote investment and potential EG
 - More certain about value of savings→save more→increase in supply of loanable
 - funds→interest rates fall→by MEI, investments increase
 - Certain about inflation→increase business confidence→ investments increase
 - I increases \rightarrow AD increases, AS increases \rightarrow actual growth and potential growth
- Fall in demand deficient unemployment
 - AD increases (from actual EG)→firms employ more workers due to labour as derived

demand→fall in cyclical unemployment

- International competitiveness and BOP improvement
 - Low relative domestic inflation \rightarrow improves price competitiveness as domestic goods are cheaper to foreigners, foreign imports are more expensive \rightarrow foreign demand for X increases, domestic demand for M falls \rightarrow X increases, M falls \rightarrow AD increases, BOT

improves \rightarrow actual growth, capital account and hence BOP improves, c.p. (assume Marshall-Lerner condition, where PED_x+PED_M<1)

■ Demand for domestic X increases→demand for domestic currency increases→Dd>Ss

→exchange rate appreciates until shortage eliminated

- Economic agents can protect themselves
 - Reduces costs of inflation
 - Banks can vary nominal interest rates that keeps up with inflation
 - Savers can place funds in banks that offer real interest rates to maintain future value of savings
 - Workers can negotiate for wage hikes as GPL rises, so that nominal wage rises with inflation

Costs (high, unstable, unanticipated inflation)

- Fall in standard of living
 - If nominal income remains unchanged→purchasing power falls→ability to consume

falls \rightarrow C falls \rightarrow AD falls, material SOL falls \rightarrow actual growth falls

■ High and unstable inflation→household hoard goods→AD shifts right, causing

shortages and further inflation

- Hinder economic growth by creating uncertainty
 - Unstable inflation creates uncertainty and difficulty in long term planning → firms less

willing to take risks→investment falls

- Production costs rise \rightarrow profitability of investment falls \rightarrow investment falls
- Loss of confidence by foreign investors→FDI falls→investment falls
- High inflation due to high interest rates→high cost of borrowing→C falls
- High inflation→decrease future value of savings if interest rates remain the same→discourage savings→fall in supply of loanable funds→interest rates increase→investment fall
- Speculative and unproductive activities drive up property prices
- Firms hoard goods in anticipation of further price increases→restrict availability of goods intensify inflationary pressures

■ Fall in C and I reduce AD and actual growth, fall in I also reduces potential growth Deteoriation of BOP and depreciation of currency

- High inflation relative to other countries→reduced export competitiveness as domestic goods are more expensive relative to foreign goods
- Demand for foreign M increases, demand for domestic X falls→X falls, M increases→(X-M) falls→AD falls, BOT worsen→AD shift left, capital account and BOP worsens, ceteris paribus
- Fall in demand for domestic $X \rightarrow$ fall in demand for domestic currency \rightarrow Dd<Ss \rightarrow Exchange rates depreciate to eliminate surplus
- Misallocation of resources
 - Difficult to distinguish whether increase in price is due to inflation or increase in demand
 - \blacksquare Mistaken increase in GPL with increase in price $\!\!\!\!\rightarrow \!\!\!$ thought demand for good

increases \rightarrow erroneously devote resources to produce more \rightarrow misallocation

- Arbitraty distribution of income leading to income inequality
 - Fixed income vs variable income
 - fixed income workers will be worse off as incomes constant while prices increase
 - Variable income workers might be better off as rising prices means more profits
 - Strong trade union vs weak trade union
 - Strong trade unions can negotiate higher wages to cope with inflation
 - ◆ Weak trade unions may not be able to do so→workers are worse off
 - Debtors vs creditors
 - Debtors pay less interest in real terms, creditors receive less interest in real terms
 - Financial asset vs physical asset holders
 - Physical assets holders are better off as value of physical assets rise with prices
 - Financial asset holders are worse off as value is not adjusted with inflation
- Significant shoe-leather and menu costs
 - Opportunity costs of time and effort wasted by people trying to counteract the effects of inflation
 - Additional costs to firms increase cost of production, AS shifts upwards further, aggravating cost push inflation
- Wage-price spiral and breakdown in function of money
 - As firms raise prices to cover soaring costs, trade unions demand higher wages to cover for higher cost of living
 - This causes COP to rise further, forcing firms to raise prices further
 - Price and wage chase each other in an inflationary spiral
 - People no longer save, spend money as fast as possible before its value falls further

Deflation (negative inflation, general price level falls)

Causes

- Fall in aggregate demand due to fall in domestic consumption, foreign demand for exports
- Increase in aggregate supply due to fall in COP cause AS curve to shift downwards Benefits
- Lower prices: increased consumer surplus
- Costs
- Holding back consumer spending: postpone demand to spend later when prices are even lower
- Lower profit margins: lower prices translate to lower revenue and profitsm causing retrenchments, unemployment and lower invesment \rightarrow causes further falls in AD and lower

potential growth

- Real burden of debt increases: drag on consummer confidence and hence the willingness to spend
- Real cost of borrowing increases: real interest rates rise if nominal interest rates remain constant, causing consumer spending and investments to fall
- Deflationary spiral: consumers and investors expect prices to fall, postponing consumption

and investment \rightarrow causes prices to fall further

3. Unemployment

Definition: people who are available for work and are actively seeking work cannot find one Aim: Full employment, level of employment resulting from the efficient use of the labour force after allowance is made for the natural rate of unemployment due to imperfect information, dynamic changes and structural changes in the economy

Natural rate of unemployment: combination of frictional and structural unemployment that

persists even in a booming economy \rightarrow full employment = no cyclical unemployment

Causes

- Frictional unemployment
 - Unemployment arising from workers searching for suitable jobs and firms seeking suitable workers
 - Due to imperect knowledge of existing market conditions, ignorance of available job opportunities
 - Dynamic economy→people are constantly leaving and seeking new jobs→ not possible to eliminate, but also not very serious
- Structural unemployment
 - Long term and chronic even if not in recession, arising from changes in the economic structure, causing skill mismatch/training time \rightarrow occupational immobility
 - Due to changes in taste and preferences and hence demand for products from

particular industry \rightarrow retrenched workers cannot find jobs in other industries

Also exhaustion of of natural resources and high wage costs \rightarrow high cost of

production \rightarrow unprofitable \rightarrow firms close down \rightarrow workers become unemployed

- People are unwilling or unable to move to find jobs → geographical immobility
- Cyclical unemployment
 - Unemployment arising from recessions or downturn of business cycles
 - Fall in AD \rightarrow stocks build up, firms lower production in the next time period \rightarrow

retrench workers due to lower derived demand \rightarrow cyclical unemployment

- Seasonal unemployment
 - Seasonal declines in business activity due to peak and slack seasons, workers are laidoff during off-peak season, eg agriculture (harvest), tourism (holidays)

Benefits - don't have, the higher the unemployment, the worse off the economy

Costs

- Output loss to economy
 - Waste of scarce resources leading to loss of potential output, hence depriving society of a higher output and standard of living (producing within PPC)
 - If there is long-term unemployment, workers become deskilled and demoralised \rightarrow

hysteresis, not employable even when economy recovers \rightarrow economy's productive

capacity falls \rightarrow fall in potential growth

- Negative impact on government budget
 - Unemployed \rightarrow no income \rightarrow no tax \rightarrow loss of government revenue
 - Welfare systems incur higher costs on paying unemployment benefits and welfare payments, loss of revenue and increase in expenditure
 - This may even reduce incentive to find jobs
- Increase in social problems
 - Hardship and misery resulting from prolonged unemlpoyment can lead to higher rates

of theft, alcoholism, depression, child abuse, suicides \rightarrow fall in non material SOL

- No income \rightarrow fall in material SOL
- No job for long time \rightarrow deskilled \rightarrow unemployable when economy recovers \rightarrow fall in future SOL

4. Balance of Payments and Stable Exchange Rate

Definition: record of a country's international transactions between residents and the rest of the world

Aim: No persistent BOP surplus or deficit, stable, not wildly fluctuating exchange rate Causes

- Current Account deficit
 - Cyclical factors changes in demand and supply of exports and imports
 - iglet Trading partners experience recession ightarrow Fall in income of trading partners ightarrow

ability to by domestic X falls \rightarrow demand for X falls (assuming normal/luxury

goods) \rightarrow X_{rev} falls \rightarrow if X_{rev}<M_{exp}, BOT deficit \rightarrow current account deficit, ceteris paribus

• Rise in domestic prices due to inflation \rightarrow domestic X relatively more expensive,

foreign imports relatively cheaper \rightarrow domestic demand for M increases, foreign

demand for X falls \rightarrow X_{rev} falls, M_{exp} increases (assuming MLC holds) \rightarrow if

 X_{rev} < M_{exp} , BOT deficit \rightarrow current account deficit, c.p.

- Structural factors demand for specific exports and imports change due to shifts in comparative advantage, taste and preferences, distribution of incomes, availability and prices of competitive goods and technology
 - If country unable to adapt to these changes \rightarrow misallocation of resources \rightarrow if
 - this results in BOT deficit, can cause current account deficit
- Exchange rate
 - Exchange rate appreciates \rightarrow domestic goods more expensive in FC, foreign

goods cheaper in DC \rightarrow demand for domestic X falls, demand for foreign M

increases \rightarrow X_{rev} falls, M_{exp} increases \rightarrow if MLC holds, (X-M) falls, BOT worsens

and current account deficit results

- Marshall-Lerner Condition: so long a the sum of PED_X and PED_M is greater than one, even if each is less than one, an appreciation would worsen the value of net exports
- Government policies
 - Trading partners implement protectionistic measures like tariffs on $X \rightarrow$ domestic

X becomes relatively more expensive in foreign countries \rightarrow demand for X falls

 \rightarrow X_{rev} falls if |PED|>1, \rightarrow BOT worsens and current account deficit, c.p.

• Industrialisation and other development projects \rightarrow heavy importation of capital

goods \rightarrow M_{exp} increases greatly \rightarrow (X-M) falls, BOT worsens, current account deficit, c.p.

- Note: if industrialisation to produce for exports, current account may improve in the long run
- Terms of trade
 - Definition: rate at which a country exchanges its exports for imports
 - (Export price index/Import price index) x 100
 - If export prices increase, terms of trade improve but BOT worsens
 - If demand for X increase, terms of trade and BOT both improve
- Random factors:
 - Eg war, natural disasters result in need to import capital goods and consumer goods to tide over tough times and rebuild the economy
 - M_{exp} increases significantly \rightarrow BOT deficit and hence current account deficit
- Capital/Financial Account deficit
 - Expected rate of return
 - Investors expect rates of return based on state of economy, profits, cost of production and government subsidies, taxes and other policies
 - If expected rate of return falls relative to other countries \rightarrow investor profitability

falls \rightarrow FDI falls, capital outflow, less capital inflow \rightarrow capital/financial account

deficit, ceteris paribus

- Relative interest rates
 - If interest rates fall relative to other countries \rightarrow deposits have less rates of

return \rightarrow short term net capital outflow ("hot money" outflow) to overseas

banks \rightarrow financial account deficit, c.p.

- Expected movements in exchange rate
 - If exchange rates expected to depreciate ightarrow speculators sell DC and buy FC ightarrow

net capital outflow \rightarrow financial account deficit, c.p.

- Abolishment of exchange control regulations
 - Previously, such regulations exist to restrict currency moving overseas
 - With abolishment, investors take advantage of investment opportunities overseas, seek diversity in investment and hence large capital outflow \rightarrow

financial account deficit

Exchange Rate Determination

Definition: Value of a country's currency in terms of another currency

Sources of demand (downward sloping) for a currency:

- Foreign consumers and firms demanding domestic goods and services
- Foreigners who wish to invest through foreign direct investment (physical assets) or foreign portfolio investment (financial assets)
- Currency traders who expect value of domestic currency to increase in the future

Factors that shift the demand curve

- Changes in demand for domestic G/S by foreigners

demand for domestic G/S increase \rightarrow more DC required by foreigners to pay for more imports

ightarrow demand for DC increases ightarrow demand curve shifts right ightarrow domestic exchange rate

appreciates, ceteris paribus

*Note: changes in demand for domestic G/S can be due to: increased foreign national income, change in taste and preferences etc. (TIGER PIE, take out E =exchange rate)

- Changes in relative interest rates

relative domestic i/r increases \rightarrow rate of returns for portfolio investment increases \rightarrow demand

for DC increases \rightarrow demand curve shifts right \rightarrow domestic exchange rate appreciates, ceteris

paribus

- Changes in expectations of currency traders regarding future value of domestic currency against foreign currency

expect DC to appreciate in the future \rightarrow sell foreign currency and buy DC to sell DC in the

future to earn a profit \rightarrow demand for DC increases \rightarrow demand curve shifts right \rightarrow DC

appreciates, ceteris paribus

*Note: Expectations depands on expected future performance of economy, political stability, interest rates and even fiscal policies.

Sources of supply (upward sloping) for a currency:

- Domestic firms and consumers demanding foreign goods and services
- Locals who wish to invest in other countries through FDI or foreign portfolio investment
- Currency traders who expect value of foreign currency to increase in the future

Factors that shift the supply curve:

- Changes in demand for foreign G/S by locals

Demand for foreign G/S increases \rightarrow demand for M increases \rightarrow more FC required to pay for M

 \rightarrow sell more DC to buy more FC \rightarrow supply for DC increases \rightarrow supply curve shifts right \rightarrow DC

depreciates, ceteris paribus

- Changes in relative interest rates

Relative interest rates fall \rightarrow rate of returns for local banks falls, foreign banks increase \rightarrow

increase foreign portfolio investment by locals \rightarrow short term capital outflow \rightarrow locals sell DC

and buy FC to put in foreign banks \rightarrow supply of DC increases \rightarrow supply curve shifts right \rightarrow DC

depreciates, ceteris paribus

- Changes in expectations of currency traders regarding future value of domestic currency against foreign currency

Expect DC to depreciate/FC to appreciate \rightarrow sell DC now to buy FC to earn a profit later/avoid

a loss \rightarrow supply for DC increases \rightarrow supply curve shifts right \rightarrow DC depreciates, ceteris paribus

Exchange Rate Equilibrium

When both the demand and supply for a currency changes, the exchange rate market adjusts to a new equilibrium via the market adjustment process (assume free-floating ERS) [E.g. Both demand and supply increases, demand increase more than supply]

- At the original exchange rate level, there is a shortage of domestic currency
- Unward prossure on domostic currency, causing it to approciate until Dd-Sc

- Upward pressure on domestic currency, causing it to appreciate until Dd=Ss

Types of exchange rate system

- 1. Free floating exchange rate
 - a No government invervention and exchange rate depends on forces of demand and supply in foreign exchange (forex) market
 - b BOP will always be in equilibrium as any surplus or deficit will be automatically eliminated via adjustments
 - c inflows/credits of BOP constitutes demand for a currency, while outflow/debit of BOP consitutes supply of a currency, freely float ERS ensures that demand for a currecy always equals to supply by the market adjustment process, thus BOP always balances
 - d
 However, there can still be a current account deficit, only that it is matched by a capital/financial account surplus such that it balances overall
 - e \cdot Temporary surplus \rightarrow appreciation to worsen BOT; temporary deficit \rightarrow

depreciation to improve BOT

2. Fixed or managed exchange rate

- a Government intervention in forex market to fix or manage the exchange rate
- b Persistent deficit/surplus as long as the exchange rate is fixed above/below the free market exchange rate
- c > To keep exchange rate fixed above free market equilibrium, the Central Bank buys DC and sells FC (hence artifically increase demand for DC)
 - i. Since this prevents ER from depreciating fully, persistent BOP deficit
 - ii. Keep on selling FC \rightarrow fall in foreign reserves \rightarrow fall in ability to ward off

potential speculative attacks (see later)

- d
 To keep exchange rate fixed below free market equilibrium, the Central Bank sells
 DC and buys FC (hence artifically increase supply for DC)
 - i. Since this prevents ER from appreciating fully, presistent BOP surplus
 - ii. Keep on buying FC \rightarrow increase in foreign reserves \rightarrow enables country to

ward off potential speculative attacks, but also prompt retliation in the form of protectionism (see later) as they are deemed to be practicing unfair trade

Persistent BOP deficit

- Persistent current account deficit
 - Benefits
 - Dampens demand pull inflationary pressures
 - Assuming full employment or at upward sloping part of AS curve, current account deficit due to BOT deficit can result in fall in AD and hence fall in GPL, ensuring price stability
 - Costs
 - Rise in external debt and loan repayment problem:
 - Persistent deficit \rightarrow finance debt from sale of physical and financial

assets and borrow from IMF or other countries \rightarrow incur external debt

 \rightarrow increasing proportion of national income used to service debt \rightarrow

less funds for consumption and investment

- Inability to pay debt → partners refuse to lend → domestic spending falls drastically
- Default on loans \rightarrow loss of confidence \rightarrow investment falls drastically
- Fall in national output and employment
 - Contractionary effect on economy
 - Current account deficit due to BOT deficit can result in (X-M) fall and hence fall in AD \rightarrow more than proportionate fall in RNY due to multiplier

effect \rightarrow fall in actual growth

- Fall in AD \rightarrow Derived demand for labour falls \rightarrow demand deficient UnE
- Note: only a problem if the deficit is persistent, eg if deficit due to buying capital goods to export later, not of concern
- Persistent capital/financial account deficit
 - Costs
 - ♦ Fall in employment
 - If deficit due to fall in FDI \rightarrow less investment in form of factories,

machines \rightarrow employ less workers \rightarrow unemployment

- Fall in potential growth
 - If investment falls \rightarrow less capital accumulation \rightarrow reduced productive

capacity \rightarrow Impact future SOL and potential growth

Persistent BOP surplus

- Persistent current account surplus
 - Benefits
 - Economic growth, employment opportunities, higher SOL
 - Increase in net export revenue \rightarrow increase in AD \rightarrow actual growth more

than proportionately due to multiplier effect

- More hiring of labour \rightarrow reduced cyclical unemployment
- Higher material SOL and indirectly, non material SOL (assuming rate of increase in GDP per capita>increase in population size)
- Costs
 - Inflation
 - Injection of AD, if there is a lack of spare capacity, instead of actual growth by the multiplier effect, there will be inflationary pressures and demand-pull inflation
 - Retaliation
 - Persistent surplus is due to persistent deficit in other countries \rightarrow other

countries cannot reduce deficits \rightarrow retaliate by imposing import

controls and tariffs \rightarrow detrimental to world trade

- "Dutch disease" effect
 - Surplus in current account due to a particular booming sector \rightarrow under

freely floating ERS, exchange rate appreciates \rightarrow net exports fall in

other sectors

- Persistent capital/financial account surplus
 - Benefits
 - Actual and potential growth
 - High amounts of FDI in the form of factories and machinery raise I and hence AD, creating actual growth
 - Creates more jobs, reducing unemployment
 - Investment of capital goods leads to increase capital formation, raising

the productive capacity \rightarrow potential growth

Macroeconomic Policies

Demand management policies: fiscal policies (FP) and monetary policies (MP): affeect level of aggregate demand and hence NY, employment and GPL

Supply management policies: supply side policies (SSP): afecet level of aggregate supply, and hence potential output, employment and GPL

Fiscal Policy

Definition: deliberate management of government spending and taxation designed to influence the level of economic activity in order to achieve the government's economic goals (both macro and micro)

- The Budget: planned government expenditure and sources of revenue \rightarrow budget

deficits and surpluses are deliberately planned (discretionary fiscal policy)

- Debated and passed by the parliament
- G>T, budget deficit, expansionary FP
- G<T, budget surplus, contractionary FP
- G=T, balanced budget
- Sources of revenue:
 - Taxes (compulsory payments made by individuals or firms in the private seector to the government without any services rendered in return)
 - Direct tax: taxes on income and wealth, impact and incidence on same person (burden cannot be passed)
 - Indirect tax: taxes on expenditure and production of goods, impact on firms, but burden may be partially distributed to consumers
 - Marginal tax rate = change in tax paid/change in income
 - Average tax rate = total tax paid/total income
 - Tax systems
 - Proportional tax: same proportion paid as income rises (corporate)
 - Progressive tax: tax rate increases as income increases (personal income tax) → reduces income inequality, accounts for ability to pay
 - Regressive tax: tax rate decreases as income falls (GST) \rightarrow since the

poor spend a larger proportion of income on necessities, they pay the same GST, but higher rate as a proportion to their income

- Sale of goods and services (from state enterprises, investments by the government investment corporation, license fees and fines)
- Effect of tax on
 - Production
 - Incentive to work (labour supply)
 - Income effect: higher T income \rightarrow disposable income falls \rightarrow

to maintain level of consumption, work more \rightarrow Higher taxes

<mark>encourage work</mark>

Substitution effect: higher income $T \rightarrow$ less consumption per

hour of work \rightarrow less opportunity cost per hour of leisure \rightarrow

Higher taxes discourage work

- Net effect depends on strength of both effects
- Incentive to take risks (entrepreneurship)
 - Higher corporate T \rightarrow reduce after tax profits \rightarrow reduce

reward for risk taking \rightarrow disincentivise enterprise \rightarrow Higher T

discourages risk-taking
- Resource allocation
 - Higher corporate T for particular industry \rightarrow less after tax profits

for that industry \rightarrow firms raise prices \rightarrow less quantity demanded

 \rightarrow less resources allocated to produce it \rightarrow Higher T influences resource allocation by moving resources from high taxed to low taxed production

• Higher income T due to progressive tax system \rightarrow disposable

income doesn't increase as much as Y \rightarrow outflow of talent \rightarrow

Higher T moves labour from high taxed to low taxed countries

- Savings
 - Progressive income taxes reduce the ability and willingness to saveInvestments
 - Higher income T → Lower savings → less loanable funds →

interest rates increase \rightarrow by MEI theory, investments fall

• Higher corporate $T \rightarrow$ fall in after tax profits \rightarrow fall in financial

capital available for investment \rightarrow fall in investment

- Inflation
 - Higher indirect tax \rightarrow price of G/S increase \rightarrow cost of living

increases \rightarrow trade unions demand for higher wages \rightarrow inflationary

spiral \rightarrow Higher T increases cost push inflation

• Higher direct tax \rightarrow fall in disposable income \rightarrow fall in ability to

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consume \rightarrow fall in C \rightarrow fall in AD \rightarrow Higher T reduces demand-pull
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inflation

- Government expenditure
 - Operating expenditure: routine and recurrent (general dministration, economic services like transport, social services like education, community services like fire brigade, and servicing national debt)
 - Development expenditure: development projects for economic and social developmenttt, such as the building of infrastructure
 - Effect of government expenditure on:

- Resource allocation
 - Influence patterns of production by giving grants and subsidies to encourage production as resources will be attracted to the lowered cost of production and likely higher profits
- Income and wealth distribution
 - Government expenditure on social services like healthcare, education,

social welfare and old age pensions mainly benefit the poor \rightarrow reduce

income inequality to a certain extent

- ♦ Economic growth
 - Government expenditure on infrastructural development can improve productive efficiency \rightarrow attract investments \rightarrow I increase, AD increase

 \rightarrow actual growth

- Improve productive capacity \rightarrow AS shifts right \rightarrow potential growth
- Internal stability
 - Influence level of economic activity since G is a component of AD
 - Increase G to increase AD (recession)
 - Decrease G to decrease AD (high inflation)
- Types of fiscal policy
 - Non-discretionary fiscal policies: build-in stabilisers
 - Checks or stimulates economic activity, not by any deliberate government action, but by built-in or automatic stabilisers
 - Apply brakes to economic boom and cushion recessions
 - Progressive tax structure
 - Economic expansion \rightarrow more people with higher income \rightarrow fall into

higher tax rate bracket \rightarrow pay more tax \rightarrow thus tax payments increase

faster than increase in incomes \rightarrow extra withdrawal exerts contrationary

pressure on economy \rightarrow economic expansion slows down

- This controls increase in AD by keeping inflation in check to stabilise the economy
- Economic recession \rightarrow incomes fall rapidly \rightarrow more people at lower

income tax bracket \rightarrow tax fall faster than incomes fall \rightarrow fall in

consumption slows down

- Controls fall in AD to cushion effects of recession
- Unemployment compensation

• Economic expansion \rightarrow reduced unemployment \rightarrow less benfits paid \rightarrow

fall in $G \rightarrow$ fall in AD \rightarrow slows down rate of growth

• Economic recession \rightarrow higher unemployment \rightarrow more benefits paid \rightarrow

increase in $G \rightarrow$ increase in AD \rightarrow cushions fall in AD

- Family assistance programmes
 - Aid is tied to income levels thus automatically stabilises demand
- Non-discretionary fiscal policies exercise counter cyclical effect on economic activity (reduce overheating), but they do not eliminate these fluctuations entirely → calls for discretionary FP
- Discretionary fiscal policies
 - Deliberate changes in G and/or T to bring about a desired change in the level of AD
 - Government stance based on budget: expansionary or contractionary
 - Expansionary FP
 - Recession, economy operating below full employment
 - Budget deficit by increasing G/decreasing T to stimulate AD
 - Increase G: permanently increases NY due to it being a new expenditure → injection brings about more than proportionate increase in NY by the multiplier effect
 - Decrease T: increase household disposable income \rightarrow spend some of it

on additional goods \rightarrow C increases \rightarrow AD increases more than

proportionately by the multiplier effect

- Note: more decrease in T to bring about same effect as increase in G due to part of the increase in disposable income being saved or spent on imports
- Contractionary FP (austerity measures)
 - Close an inflationary gap or during periods of excess demand and inflation
 - Budget surplus by reducing G/increasing T to reduce AD
 - Decrease G: permanently reduces NY \rightarrow fall in G brings about more than proportionate fall in NY by the multiplier effect
 - Increase T: decrease household disposable income \rightarrow reduced amount

of remaining disposable income spent on consumption \rightarrow C falls \rightarrow AD

falls more than proportionately by the multiplier effect

- Effects of FP on the economy
 - Economic growth and employment
 - Problem: recession and unemployment
 - Solution: expansionary fiscal policy by increasing government expenditure on building infrastructure, reducing taxes
 - Such projects have higher derived demand for labour, overall national income increases by the amount of government expenditure
 - Many round of induced consumption cause RNY to increase more than proportionately by the multiplier effect
 - Higher derived demand for labour results in lower cyclic unemployment
 - Building of infrastructure/subsidising R&D may increase productive capacity

thereby increasing potential growth \rightarrow fiscal measure with supply side effects

- Inflation
 - Problem: Demand pull inflation
 - Solution: contractionary fiscal policy by reducing government expenditure or increasing taxes to directly lower AD and reduce pressure on GPL; rise in taxes reduce C and I
 - However, reducing inflation comes at a cost of reduced actual growth and higher unemployment
 - Expansionary fiscal policies by increasing spending on R&D and capital goods can increase productive capacity and prevent overheating of the economy, thereby dampen inflation in the long run (but may worsen problem in SR)
- Balance of payments
 - Problem: BOP deficit
 - Solution: contractionary fiscal policy by planning a budget surplus
 - Expenditure reducing: fall in AD \rightarrow fall in RNY \rightarrow fall in ability to by M \rightarrow

fall in $M_{exp} \rightarrow BOT$ improvement $\rightarrow BOP$ improvement, c.p.

• Expenditure switching: fall in AD \rightarrow fall in GPL \rightarrow X become cheaper to

foreigners, M become more expensive for locals $\!$ demand for X

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increases, demand for M falls \rightarrow X<sub>rev</sub> increase, M<sub>exp</sub> falls \rightarrow BOT
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improvement \rightarrow BOP improvement, c.p.

- Microeconomic objectives
 - Resource allocation: subsidies, tax excemptions can divert resources from one sector to another
 - Income distribution: progressive tax system can reduce income inequality, while increase in GST can worsen it

- Limitations of FP

(discretionary FP)

- Size of multiplier
 - Small size of k means that the government needs to pump in more G for desired increase in NY
 - Limits effectiveness due to high opportunity cost
- Time lags
 - Recognition lag: time before problem is recognised and diagnosed, eg recession requires months before it is recognised
 - Administrative lag: lag between recognition and action, such as or planning, designing policies, contracts, and debates in parliament
 - Operation lag: lag between action and impact of action, such as tax changes only affect businesses at the end of the year; multiplier effect takes months to be felt
- Challenges when financing a budget deficit
 - Crowding out effect of domestic investment: government borrows from private banks to finance its expenditure, leaving less funds for the private

sector \rightarrow interest rates increase \rightarrow by MEI theory, investment fall

- Increase in interest rate increases cost of borrowing and reduces rate of returns \rightarrow reduces C and I \rightarrow AD doesn't increase as much as expected
- ◆ Crowding out in an open economy: assuming free capital mobility, as interests rates rise (from above) → deposits in local banks have higher rate

of returns \rightarrow "hot money" inflow \rightarrow demand for DC increases \rightarrow DC

appreciates \rightarrow X become less price competitive, more expensive \rightarrow X might fall, M might rise, AD might fall overall

- Burden on future SOL: budget deficit results in national debt \rightarrow higher taxes in the future to finance debt servicing, opportunity cost of money used to pay debt instead of something else \rightarrow less than possible actual growth
 - If debt owed to private sector, may worsen income inequality as taxes are taken from everyone to pay the rich
- Tradeoffs between goals
 - Contractionary FP reduces inflation at the cost of economic growth and unemployment
 - Expansionary FP increases employment and economic growth at the potential cost of inflation and worsening of BOT and hence BOP
- Miscellaneous problems
 - Policical pressures from lobby groups: deficits are politically attractive:

letting people know that you are spending money on them

- Problem of magnitude with forecast errors: effectiveness depends on accuracy of forecasting and predictbility of outcome of FP, eg size of k, MPM, MPS very difficult to estimate
- Inflexibility or irreversibility: once G is implemented, it may be difficult to cut back, eg in the midst of building a highway

(non-discretionary FP)

- Adverse supply side effects
 - Steep progressive income taxes may discourage work effort and initiative, working for promotion and taking risks
 - This discourage the growth of production as productive capacity does not

increase with pace of actual growth \rightarrow inflation may result

- High unemployment benefits may increase frictional unemployment
- Fiscal drag
 - Definition: contractionary effect of increased tax revenues produced by increases in national income
 - igle As the economy recovers ightarrow incomes rise, but tax revenues rise too ightarrow

reduce disposable income \rightarrow reduced increase in C \rightarrow drag on rise in AD

- In Singapore
 - Private sector is the engine of growth, the government's role is to provide a stable and conducive environment for the private sector to thrive
 - Tax and expenditure policies should be justified on microeconomic grounds and focus on supply side issues
 - Counter-cyclical role of fiscal policy is limited due to high import leakages
 - Key areas of expenditure: education, public housing, healthcare, defence
 - Tax policies seek to enhance its economic competitiveness and attract foreign investments (ie very low corporate tax)

Monetary Policy

Definition: attempts of the monetary authorities to influence the money supply and rate of interest so as to bring about desired changes in the economy

- Traditional monetary policy: Central Bank manages money supply to affect interest rates and subsequently influences changes in AD to achieve macroeconomic goals
- Exchange rate policy: Central Bank fix or manage the value of the home currency
- Central Bank: principal monetary authority of a nation, performming key functions including issuing currency and regulating the supply of money (Monetary Authority of Singapore, MAS; Federal Reserve Bank, Fed [USA], Bank of England [UK])

Interest Rate Policy

Definition: interest rate is, to the lender, the cost of borrowing; to the saver, the reward of putting aside money

Interest Rate Determination

- 1. Liquidity Preference Theory
 - a Supply of money is independently set by the Central Bank at M_s, i.e. Money supply is perfectly supply inelastic (vertical line)
 - b Demand for money is the demand to hold assets in liquid form, hence liquidity preference
 - i. Transactionary: for daily purposes (independent of i/r)
 - ii. Precautionary: for emergency (independent of i/r)
 - iii. Speculative (inversely related to i/r) \rightarrow cause M_d to be downward sloping
 - 1. i/r increase \rightarrow govt bonds pay more interest \rightarrow demand for liquid money falls
 - 2. i/r falls \rightarrow govt bonds not as attractive \rightarrow prefer to hold money in liquid form
 - 3. As interest rates increase, demand for money in liquid form falls
 - $c \, \cdot \,$ Changes in non-i/r variables cause M_d to shift
 - i. Increase in RNY \rightarrow increase in demand for goods and services \rightarrow increase in

demand for money to buy them at every price level

ii. Increase in GPL \rightarrow increase in money required to purchase \rightarrow increase in

demand of money at everyprice level

- d
 Ms shifts based on monetary policy of the Central Bank
 - i. When M_s shifts, interest rates fall in the short fun
- 2. Loanable Funds Theory
 - a > **Demand** of loanable funds demands on willingness of firms to borrow money to undertake new investment projects
 - i. The lower the i/r, the more investment projects become profitable, hence willingness to invest increase, hence demand for loanable funds increase
 - ii. Demand also depends on willingness of households to borrow for big ticket items
 - iii. The lower the i/r, the lower the cost of borrowing, the more willing to buy, hence demand for loanable funds increase
 - iv. Demand for loanable funds also come from governments to finance public projects and financing fiscal deficits
 - v. As i/r falls, demand increases $\rightarrow D_{LF}$ curve is downward sloping
 - b **Supply** of loanable funds depends on level of savings

- i. The higher the i/r, the greater the rate of return, the higher the opportunity cost of present consumption as the interest forgone is higher, thus the higher the level of savings
- ii. As i/r increases, supply increases $\rightarrow S_{LF}$ is upward sloping
- c > At equilibrium, quantity of LF demanded=supply of LF, if one exceeds the other, there will be a shortage/surplus, and interest rates will increase/fall respectively
- d
 Changes in non-i/r variables shift the demand curve
 - i. Expected profit: the greater the expected profit, the greater the amount of investment at each interest rate level
 - ii. Technological advancement: causes increase in productivity thus increase in expected profits
 - iii. High economic growth: houeholds and firms become more optimistic and are more inclined to consume and invest more \rightarrow demand increases at

every interest rate level

- iv. Fiscal deficit: fiscal deficits may force governments to borrow to finance the deficit \rightarrow demand for LF increases at every interest rate level
- e Changes in non-i/r variables shift the supply curve
 - i. Disposable income: higher disposable income, higher absolute savings
 - ii. Expected future income: expected income to increase \rightarrow spend more now

 \rightarrow level of savings fall

- iii. Monetary policy: if CB increases money supply, more funds available at any given time \rightarrow supply increases at every interest rate level
- Types of monetary policy
 - Expansionary MP (or easy money policy)
 - Increases money supply \rightarrow interest rates fall, c.p. \rightarrow stimulates investment
 - and consumption \rightarrow AD increases \rightarrow actual growth, lower unemployment
 - Internal effects
 - Direct transmission mechanism: increase money supply through purchase of bonds in the open market \rightarrow directly injecting money into

the open market \rightarrow bondholders with more money spend it \rightarrow AD rises

• Indirecte transmission mechanism: increase money supply causes interest rates to fall \rightarrow lower cost of borrowing and investing \rightarrow higher

expected profits and lower opp cost of borrwing \rightarrow C and I increases \rightarrow

AD rises

- External effects
 - Interest rates fall relative to other countries \rightarrow deposits have lower rate

of return here \rightarrow "hot money" outflow \rightarrow increase in supply of DC, fall

in demand of DC \rightarrow DC depreciates \rightarrow goods become cheaper in FC \rightarrow

more price competitive \rightarrow net exports increase, c.p. \rightarrow AD increase via

multiplier effect; BOT and hence BOP improves

- However, due to rises in AD, could have inflationary effects
- Effectiveness
 - Interest elasticity of demand for money
 - If demand for money is i/r elastic \rightarrow increase in money supply will

cause a more than proportionate fall in i/r \rightarrow greater impact on AD

If demand for money is i/r inelastic \rightarrow increase in money supply will

cause a less than proportionate fall in $i/r \rightarrow$ smaller impact on AD

- Liquidity trap: at low interest rates, demand for money is almost perfectly interest elastic as the i/r is so low that it no longer makes a difference to hold liquid or paper assets
- If in liquidity trap \rightarrow change in money supply does not affect i/r \rightarrow

no indirect transmission mechanism

- Interest elasticity of demand for investment (i.e. MEI theory)
 - If investment is interest elastic \rightarrow increase in Ms \rightarrow fall in i/r \rightarrow

more than proportionate increase in investment \rightarrow increasing Ms

is effective in increasing investment and hence AD (monetarist)

If investment is interest inelastic \rightarrow increase in Ms \rightarrow fall in i/r \rightarrow

less than proportionate increase in investment \rightarrow increasing Ms is

ineffective is increasing investment and hence AD (Keynesian)

- Expectation of future state of the economy
 - Business pessimism → expected profits for investments fall → MEI

shifts to the left and become more interest inelastic \rightarrow fall in i/r

may not cause I to increase

- Time lags
 - Multiplier effect (direct transmission) take months for effects
 - Interest rates (indirect transmission) may take effect when economic recovery already under way
 - Spending during economic recovery may fuel inflation
- Inability to achieve specific macroeconomic objectives
 - Ineffective in targeting supply-side problems like structural UnE
- Tradeoff between RNY/UnE and inflation
- Imperfect information of workings of economy \rightarrow guesswork on CB's

part \rightarrow full effects of policy can only be estimated

- Contractionary MP (tight money policy)
 - ◆ Decreasing money supply to increase interest rates to reduce investments and consumption → usually to counter inflationary pressures due to optimism despite scarce resources
 - ♦ Internal effects
 - Savings become attractive: Ms falls \rightarrow i/r increases \rightarrow rate of return on

savings increase \rightarrow savings increase \rightarrow C falls \rightarrow AD falls

- Cost of borrowing increases: C and I falls (as explained before) \rightarrow AD falls
- Unemployment: due to fall in C and I, firms reduce production in the next time period and less investment projects are undertaken \rightarrow

derived demand for labour falls \rightarrow demand deficient unemployment

- External effects
 - Interest rates increase relative to other countries →deposits have higher rate of returns here → "hot money" inflow (assume free capital mobility)→ demand for DC increases → DC appreciates → domestic goods become more expensive in FC, foreign goods become cheaper in DC → demand for X falls, demand for M increases → net exports fall → fall in AD, BOT and hence BOP worsens

- Effectiveness
- Interest elasticity of investments (same)
 - MEI theory: if investment are interest elastic, fall in money supply will increase interest rates and have a larger effect in reducing I, vice versa
- Short or long term projects
 - Interest rates may not affect AD if long term projects are already under way and cannot be abandoned easily without incurring larger losses
 - As long as profits can still cover the higher cost of borrowing compared to abandoning project, they will continue to borrow
- Conflicts with other macroeconomic goals
 - Inflation/BOP Economic growth/unemployment tradeoff
- Availability of alternative source of funds
 - If firms have multiple sources of funding then contractionary interest rate policy will not be effective
 - Increases in FDI that does not depend on local i/r may thwart attempts to reduce I
- Expectation of future state of economy/profits
 - Business optimism→high expected rate of profits → still invest despite high cost of borrowing
- Imperfect information of workings of economy \rightarrow can only estimate effects
- Singapore does not adopt interest rate policies
 - Singapore is a small economy \rightarrow interest rate taker
 - Relies heavily on foreign investment \rightarrow cannot afford to go above global i/r

Note: to Keynesian economists, the MEI is interest-inelastic, i.e. Investment is not very responsive to interest rates, but more dependent on "animal spirits" or expectations of future economic conditions. Monetary policy further lacks effectiveness in liquidity trap where it has no impact at all, hence Keynesian prefer the use of fiscal policy.

Exchange Rate Policy

Definition: value of a country's currency in terms of another Exchange Rate Determination (recap)

- Floating or flexible exchange rate system (ERS): no intervention by Central Bank (i.e. This country does not adopt exchange rate policies), follows market forces
- Managed float or fixed exchange rate system: fixed value by buying or selling foreign currency to keep exchange rate constant, or allowing value to float within a targeted band, intervening only when ER goes above or below the set band
- Demand for currency affected by: demand of domestic goods by foreigners, relative i/r and expectations of future value of DC
- Supply for currency affected by: demand of foreign goods by locals, relative i/r and

expectations of future value of FC

- Exchange Rate Determination in the long run
 - Relative inflation rates between countries
 - If A has a higher inflation rate than $B \rightarrow A's$ prices are relatively more expensive than B
 - Price of X from A increases \rightarrow Demand for X falls \rightarrow (assume price elastic)

PxQ falls $\rightarrow X_{rev}$ falls \rightarrow demand for \$A falls \rightarrow \$A depreciates

• Price of M from B falls \rightarrow demand for M increases \rightarrow PxQ increases \rightarrow M_{exp}

increases \rightarrow demand for \$B increases \rightarrow supply for \$A falls \rightarrow \$A depreciates

- Generally, if goods are cheaper, currency will appreciate; if goods are more expensive, currency will depreciate
- Relative rates of productivity growth
 - Productivity of A rises faster than $B \rightarrow$ average COP falls faster in A than B
 - Price of X from A become cheaper relatively \rightarrow demand for X from A

increases \rightarrow demand for \$A increases \rightarrow \$A appreciates

• Price of M from B becomes expensive relatively \rightarrow demand from M from B

falls \rightarrow demand for \$B falls \rightarrow supply for \$A falls \rightarrow \$A appreciates

- Preferences for domestic or foreign goods
 - If consumers increasingly prefer $M \rightarrow$ demand for M increases \rightarrow supply of

DC increases \rightarrow DC depreciates

• If consumers increasingly hate $M \rightarrow$ demand for M falls \rightarrow supply of DC falls

 \rightarrow DC depreciates

- Types of exchange rate policy
 - Fixed exchange rate (Malaysia, China, Hong Kong, Thailand)
 - Minimise uncertainly and prevent fluctuations in ER
 - Central Bank fixes the external value of a domesitc currency at a specific rate of exchange to another country's currency
 - When there is an upward pressure on exchange rate (i.e. Current ER is below market ER), CB will sell DC to buy FC to artifically increase the supply of DC

to keep ER low

When there is a downward pressure on exchange rate (i.e. Current ER is above market ER), CB will buy DC and sell FC to artifically increase the

demand for DC to keep ER high \rightarrow use foreign reserves that will be used up

- Managed float exchange rate
 - Currency is free to fluctuate within a band, the Central Bank intervenes to prevent excessive fluctuations outside the band, allowing market forces to determine ER within the band
 - When ER goes above the upper limit, CB sells DC and buy FC to keep ER below upper limit by artifically increasing supply of DC
 - When ER goes below lower limit CB buys DC and sells FC to keep ER above lower limit by artifically increasing demand for DC
- Singapore's Exchange Rate Policy
 - Managed float by the Monetary Authority of Singapore
 - Exchange rate centred monetary policy is to promote price stability (control of inflation) as a sound basis for sustained economic growth in the long run
 - Gradual and modest appreciation of the SGD (because SGD has always been below market ER, thus there is always an upward pressure)
 - To keep SGD below, MAS sells SGD and buys foreign currency accumulating foreign reserves
 - Why manage ER?
 - Small size and openness of Singapore economy \rightarrow highly dependent on

external sector (total trade is 4 times its GDP) \rightarrow exchange rate directly affects the largest components of Singapore's AD

 \blacklozenge Small size of economy, lack natural resources \rightarrow price taker in global

economy \rightarrow high import content means that **exchange rate** have significant

influence on GPL \rightarrow controllling ER can offset imported inflation

- ◆ Vast network of international financial linkages exist in promoting Singapore as a financial hub → open economy with free capital mobility → small differences between domestic and foreign i/r can lead to quick and large movement of funds → difficult to control money supply
- Heavily dependent on FDI due to weak local entrepreneaurship \rightarrow promote actual and potental growth and low employment \rightarrow need **free capital mobility**
- Free flow of hot money gives additional supply of loanable fundsin banks for

loans \rightarrow stimulate investment and achieve aim as financial hub

• Open economy trilemma \rightarrow relinquish control over interest rate to maintain

control over exchange rate and free capital mobility

- Why? Assume open financial account (or free capital mobility)
 - If MAS fix i/r below i/ $r_{world} \rightarrow$ hot money outflow \rightarrow supply of SGD

as falls \rightarrow SGD depreciates \rightarrow CB has to accept depreciation (can

only intervene in the short run by selling FC and buying DC as foreign reserves will run out eventually)

- SGD is managed against trade-weighted basket of curencies of majorr trading partners (Trade Weighted Exchange Rate)
- Effects of ERP on
 - Aggregate demand
 - If ER depreciates
 - P_M increases relatively $\rightarrow Qd_M$ falls $\rightarrow M_{exp}$ falls $\rightarrow M$ falls $\rightarrow AD$ rises
 - P_X falls relatively $\rightarrow Qd_X$ increases $\rightarrow X_{rev}$ increases $\rightarrow X$ rises $\rightarrow AD$ rises
 - If ER appreciates
 - P_X increases relatively $\rightarrow Qd_X$ falls $\rightarrow X_{rev}$ falls $\rightarrow X$ falls $\rightarrow AD$ falls
 - P_M falls relatively $\rightarrow Qd_M$ increases $\rightarrow M_{exp}$ increases $\rightarrow M$ rises $\rightarrow AD$ falls
 - Talls
 - Aggregate supply
 - If ER depreciates
 - P_M for raw materials increases relatively \rightarrow COP rises \rightarrow AS falls (AS curve shifts upwards)
 - If ER appreciates
 - P_M for raw materials falls relatively \rightarrow COP falls \rightarrow AS rises (AS curve shifts downwards)
 - Economic growth, unemployment and inflation
 - If ER depreciates
 - AD rises \rightarrow rundown on inventories \rightarrow increase production in next time

period \rightarrow hire more workers \rightarrow cyclic unemployment falls and actual

growth (if on upward sloping AS, inflation occurs)

• COP rises \rightarrow dampens increase in RNY + higher general price level

- If ER appreciates
 - AD falls \rightarrow stock up on inventories \rightarrow reduce production in next time

period \rightarrow lay off more workers \rightarrow cyclic unemployment rises and fall in actual growth (if on upward sloping AS, fall in GPL)

- COP falls \rightarrow cushions fall in RNY + lower general price level
- Balance of payments
 - If ER depreciates
 - P_M to locals increase $\rightarrow Qd_M$ falls \rightarrow if $|PED_M|>1$, Qd falls more than

proportionately \rightarrow M falls \rightarrow BOT improves \rightarrow BOP improves (as PED_M increases, BOP improves more)

• P_X to foreigners falls $\rightarrow Qd_X$ increases \rightarrow if $|PED_X|>1$, Qd rises more

than proportionately \rightarrow X increases \rightarrow BOT improves \rightarrow BOP improves (as PED_x increases, BOP improves more)

- Marshall-Lerner Condition: As long as |PED_{XI}+|PED_M|>1, a depreciation will result in the improvement of balance of payments
- If ER appreciates
 - P_M to locals falls $\rightarrow Qd_M$ increases \rightarrow if $|PED_M|>1$, Qd increases more

than proportionately \rightarrow M increases \rightarrow BOT worsens \rightarrow BOP worsens

(as PED_M increases, BOP worsens more)

• P_X to foreigners increasess $\rightarrow Qd_X$ falls \rightarrow if $|PED_X|>1$, Qd falls more

than proportionately \rightarrow X falls \rightarrow BOT worsens \rightarrow BOP worsens (as

PED_x increases, BOP worsens more)

- Marshall-Lerner Condition: As long as |PED_{X|}+|PED_M|>1, a depreciation will result in the improvement of balance of payments
- ♦ J curve effect
 - If ER appreciates/depreciates, in the very short run, consumers take time to change pattern and preferences, firms may have ongoing contracts and take time to increase production
 - Hence, M and X are relatively price inelastic in the very short run, which may cause MLC not to hold
 - A depreciation will then cause BOP to worsen, and an appreciation, BOP to improve
 - However, in the longer time period, changes in consumption patterns

and expiry of contracts cause X and M to be more price elastic

- Depreciate ER for more competitive exports?
 - Yes in the short run to stimulate AD during a recession
 - But export competitiveness gained is much lower than expected
 - No in the long run as it causes overheating, inflation and cause higher import prices for raw materials offsetting the gains in export competitiveness
- Overall effect
 - Depreciation: rise in AD, fall in AS, actual growth, fall in cyclic unemployment, increase inflation, BOP improves
 - Appreciation: fall in AD, rise in AS, fall in actual growth, increase in cyclic unemployment, deflation/fall in inflation, BOP worsens
- Limitations
 - Conflict with other macroeconomic goals
 - Depreciation
 - Increase NY and lower unemployment, improve BOP at the expense of inflation, both demand-pull (secondary) and cost-push inflation
 - In the long run, persistent inflation results in wage-price spiral, causing lost of price competitiveness as trade unions demand higher wages in anticipation of higher prices, thus actually pushing up COP
 - Depreciation is a once-off and short term policy to stabilize the economy in times of severe global recession
 - Appreciation
 - Prevent inflation at the expense of RNY, unemployment and BOP (but worth it!!)
 - Desirable in economic boom to dampen demand-pull inflation caused by rapid increases in AD
 - In the long term, targeting low and stable inflation can gain export comeptitiveness over competitors, and minimise wage-price spiral
 - Time lag
 - Recognition, Adminitrative, Operational lag
 - To mediate this, the MAS formulates policies in a forward looking manner by making reasonable assumption in the medium term on economic outlook and possible negative shocks
 - Imperfect information
 - Eonomic data is limited and dynamic, constantly changing
 - Making effects of policy difficult to predict and estimate the effects
 - Availability of reserves
 - To keep ER above market level is only possible if there there sufficient reserves
 - With insufficient reserves, a country will lose its ability to support the external value of the currency, and speculators, expecting an eventual depreciation, will sell-off (only applicable if ER is above market ER)

All the policies thusfar cannot affect the long term growth capacity of the economy (except

supply-side effects of fiscal policy), in LR, economic is decided by its supply side factors \rightarrow

thus require coordiation between fiscal and supply side policies

- Tinbergen-Theil theory: one policy instrument should be optimally used to achieve one macroeconomic target at a time

Supply Side Policy

Definition: designed to improve the supply side potential of an economy, make markets and industries operate more efficiently and thereby contribute to a faster rate of potential growth

- Improved supply side performance is key to achieving sustained economic growth, higher potential employment and growth while dampening inflation
- But it alone is not enough to achieve sustained economic growth \rightarrow potential growth

must be supported by a high level of AD

- Supply side policies usually lead to
 - Downward shift of AS due to fall in unit COP
 - Rightward shift of AS due to increase in productive capacity
 - Outward shift of AS due to both fall in unit COP and increase in productive capacity
- Types of supply side policies
 - Market oriented SSP
 - Essence: reduce government intervention and enable the market to work more freely by enabling firms to increase production and households to increase work
 - Product markets (increase productivity of production, lower COP)
 - Privatisation
 - Transfer of state-owned assets from public to private sector
 - Privatisation allow price mechanism to take over
 - Break up state monopolies create more competition and force them to be more productively efficient, cutting costs
 - Eg Singapore electricity market, originally Singapore Power, now split up into 8 firms, including KeppelEnergy, SemCorp
 - Gist: Firms are subject to market forces \rightarrow increase in competition

 \rightarrow incentive to cut costs to profit maximise \rightarrow unit COP falls \rightarrow

downward shift of AS

- Pro-competition policies
 - Microeconomic: improves allocative efficiency
 - Macroeconomic: lower overall unit cost of production
 - Tougher competition policy regime: Anti-trust laws to curb price fixing, collusion, merger/acquisition and predatory pricing/price wars

- Removing barriers to entry: Remove existing legal restrictions like patents and bureaucracy
- Promoting free trade between nations: Reduction or elimination of tariffs
- Limitation: reconcentration may occur as uncompetitive firms leave the industry, possibly causing established foreign firms to dominate
- Gist: anti-competition prohibited/entry of new firms/expose domestic firms to foreign competition → incentive to cut costs to

remain competitive \rightarrow unit COP falls \rightarrow downward shift of AS

- Encourage small business start-up
 - Provision of loans and technical expertise to set up small businesses
 - Starts up often bring new technology and new methods of production
 - Eg SPRING, IE Singapore, Singapore Manufacturing Federation, Local Enterprise Financing Scheme
 - Gist: encourage entrepreneaurship → new methods of production

 \rightarrow increase productive capacity and if COP remains the same, unit

 COP falls \rightarrow outward shift of AS

- Limitation: despite the fiscal boost, high risk involved still deter would-be entrepreneurs from going aheaad
- Labour markets (increase producvitiy of labour, lower wages)
 - Reducing the power of trade unions
 - Power of trade unions contribute to rising labour costs and cost-push inflation
 - Reduce power of trade unions \rightarrow reduce ability to unilaterally raise

wages \rightarrow reduce extent of cost-push inflation \rightarrow downward shift of

AS curve

 \blacksquare Reduce power of trade unions \rightarrow reduce incidence of work

stoppages and strikes \rightarrow business confidence increases \rightarrow attract

more FDI in capital investment \rightarrow productive capacity increases \rightarrow

rightward shift of AS curve

Eg Tripartite policy, with Singapore Employers Federation (employers), NTUC (employees) and Ministry of Manpower (MOM) sit in the National Wage Council to discuss wage policies

- Tax reforms (reducing income tax rate)
 - Fall in income tax \rightarrow increase in disposable income \rightarrow increased opportunity cost of leisure \rightarrow work more/postpone retirement \rightarrow increased productivity \rightarrow productive capacity increases \rightarrow rightward shift of AS curve
 - Fall in income tax \rightarrow attract foreign talent \rightarrow increase labour supply

 \rightarrow increase productive capacity \rightarrow rightward shift of AS curve

Fall in corporate tax \rightarrow increase in after tax profits \rightarrow increase in

investment and FDI \rightarrow increase in capital stock \rightarrow increase in

productive capacity \rightarrow rightward shift of AS curve

- Limitation: low tax rate not sufficient to attract foreign talent and investment, political stability and conducive business environment also very important
- Cuts in social and welfare programmes
 - Overly comprehensive unemployment compensation reduce incentive to rejoin the workforce
 - \blacksquare Reduced social welfare programmes \rightarrow increase hardship of

unemployment \rightarrow increase incentive to work \rightarrow increased effective

labour supply \rightarrow productive capacity increases \rightarrow AS shifts

- rightwards
- Limitation: a level of welfare is required to help the economically disadvantaged
- Interventionist SSP
 - Essence: direct government intervention as free market provide too little incentive to address sources of market failure (positive externality, imperfect information, ineffective demand)
 - Manpower policies education and training
 - Market failure:
 - Underconsume due to positive externality of education (externality to family members, society due to increased pay, etc)
 - Unaware of benefits of higher education (imperfect information)
 - Willing but financially unable to afford education (ineffective demand)

- Limits fall in COP/rise in productive capacity
- Reduce labout market imbalances as firms may be unwilling to spend money to train; while employees may not be aware or financially capable to improve their skills
- Government subsidise retraining \rightarrow increased worker productivity \rightarrow

increase productive capacity \rightarrow rightward shift of AS curve

• Government subsidise retraining \rightarrow increased worker productivity \rightarrow

assuming it outpaces increase in wages, unit COP falls \rightarrow downward shift of AS curve

• Government subsidise retraining \rightarrow fall in occupational immobility \rightarrow fall

in structural umemployment ightarrow increased productive capacity ightarrow

rightward shift of AS curve

- Eg Continuing Education and Training (CET), Skills Development Fund (SDF), Skills Future Credits
- Limitation: takes a long period of time, and not guarantee improved labour productivity
- Manpower policies: income policy (wage guide, flexible wage, wage freeze)
 - Ensure that unit labour cost is not higher than labour productivity to keep labour costs low and hence unit COP low \rightarrow rightward shift of AS curve
 - -
 - Voluntary wage freeze during a recession prevented inflation
 - Cash grant to employers during recessions defray labour costs, encouraging businesses to retain workers to retain employment rate
 - Limitation: wage guides are voluntary and flexiwages are negotiable, facing the issue of non-compliance as they have to be convinced of the necessity of such policies and accept them in view of long term benefits

at short term costs \rightarrow clear communication and cooperation required

- Nationalisation
 - Market failure
 - Insufficient scale of nationalisation
 - Poor management of such firms resulting in fall in investment
 - Coordination and cooperation problems
 - Government takes over strategic industries like transport and telecommunications
 - Nationalisation → prudence and better coordination with greater internal

economies of scale to be reaped \rightarrow higher investment \rightarrow increase in

capital stock \rightarrow increase in productive capacity \rightarrow rightward shift of AS curve

curve

- Eg Public Utilites Board and Port of Singapore Authority
- Grants to encourage research and development
 - Market failure
 - Positive externality in R&D as other firms also benefit from breakthroughs → underconsumption
 - Unaware of benefits of R&D due to imperfect information
 - Ineffective demand due to finances and risks
 - Government subsidies for $R&D \rightarrow$ technological breakthrough \rightarrow increase

in productive capacity, fall in unit COP \rightarrow outward shift of AS curve

- Eg Research Innovation Enterprise
- Limitation: risks and unguaranteed success, with a long gestation period and sometimes the benefits may outweigh the costs
- Effects of SSP on
 - Output and price: fall in COP → increase in RNY without increase in price
 - Employment
 - Retraining: increase in occupational mobility \rightarrow fall in structural UnE
 - Cut unemployment benefits: increase incentive to work \rightarrow fall in frictional UnE
 - Increase level of production (due to increased fall in prices causing increased demand) \rightarrow increased derived demand for labour \rightarrow fall in cyclic UnE
 - Balance of payments
 - Reduced COP cause fall in cost of X that will improve the BOT, current account and hence BOP
 - Technological breakthrough \rightarrow product quality improves \rightarrow demand for X

increases \rightarrow BOT, current account and BOP improves

• Foreign firms invest more \rightarrow increase in FDI \rightarrow capital account and BOP improve

- Limitations (general)

- Imperfect information: unpredictability and limited information make estimates of effects of policies difficult
- Long term nature of SSP: take long time for efforts to be felt
- Uncertainty: uncertainty in certain policies like education, training and R&D

■ Limited by fiscal budget, and interventionist policies often require government expenditure that may not be possible in a budget deficit

A policy can have both demand side and supply side effects, but address primary/intended effect first, while secondary/unintended effects later for evaluation.

International Trade

Essence: theory of division of labour and generalising to countries

Definition: exchange of goods and services between countries, involving the use of different currenies and crossing international borders

- Arises as self-sufficiency is seldom possible as resources are unevenly distributed
- Encouraged due to differences in economic resource distribution and international immobility of factor inputs (such as land)
- Countries have different endowments of FOP, hence ability to supply certain goods and services differ between countries
- Principle is to specialise in producing goods and services that one is best suited or most skilful at and using these to trade for other goods and services that the country is less efficient at producing

Theory of Comparative Advantage

- Comparative advantage arises when a country can produce a good at a lower opportunity cost than another country
- Law of comparative advantage states that countries will gain from trade if there are differences in the relative opportunity costs of producing specific goods, and they benefit from specialising and exporting products in which they have a comparative advantage in and importing goods in which they do not.
- Assumptions
 - No transport or trade restrictions (removes additional costs to importing goods)
 - Factors of production are perfectly mobile within a country (i.e. Suited to produce all goods) and perfectly immobile internationally (i.e. Can only import goods and services and not FOP)
 - Constant opportunity costs of production
- Counter tuitive: a country can have absolute advantage in producing goods over another country yet still have a comparative advantage and disadvantage among these goods
- To illustrate comparative advantage, use 4 tables:

		Wheat	Corn		
USA		100	60		
China		5	10		
Total		105	70		
 USA has absolute advantage over production of both goods 					
	Comparative advantage				
USA		1 unit of wheat to 0.6 unit	1 unit of corn to 1.67 unit		

Initial output

	of corn	of wheat
China	1 unit of wheat to 2 units	1 unit of corn to 0.5 units
	of corn	of wheat

- To produce 1 unit of wheat, USA gives up less corn than China, thus USA has a comparative advantage of producing wheat over China
- But to produce 1 unit of corn, USA gives up more wheat than China, thus USA has a comparative disadvantage producing corn against China
- Specialisation

	Wheat	Corn
USA: partial specilisation	110	54
China: complete specialisation	0	20
Total	110	74

- If USA devotes 1/10 of its resources from corn to wheat while China devotes half its resources from wheat to corn
- Before vs after

	Wheat	Corn
USA: trade wheat with corn	100	64
China: trade corn with wheat	10	10
Total	110	74

- Assuming terms of trade of 1 wheat:1 corn, both countries are now better off
- Both countries benefit from a higher level of total output, allowing them to consume beyond their production possibility curve (PPC)
- Note: terms of trade must be reasonable, it must be between the opportunity cost of production between countries
 - Eg terms of trade must be below 1 wheat:1.67 corn or else the USA would produce corn herself instead of trading with China

Sources of Comparative Advantage

- 1. Differences in factor endowments
 - a Differences in climate and resource endowments (land, labour, capital, entrepreneaurship)
 - b $\,\cdot\,\,$ Different abundance of FOP $\rightarrow\,$ different cost of FOP $\rightarrow\,$ lower opportunity cost in

producing some types of goods due to different factor intensities in different types

of goods \rightarrow specialise in

- i. Agriculture abundance in land
- ii. Capital intensive abundance in capital and skilled labour
- iii. Labour intensive abundance in both skilled and unskilled labour
- iv. Services abundance in skilled labour and entreprenearuship
- c However, endowments may change over time due to higher investments, or higher savings leading to accumulation in capital
- 2. Differences in technology

- a
 Different countries have different stages of development hence different set of technologies in the form of
 - i. Different intensities of research and development (Finland, Sweden, Singapore, Japan)
 - 1. Process innovation: enhance use of FOP
 - 2. Product innovation: new/better quality products
 - ii. Different speeds of absorption of new technologies (Finland, Sweden, Japan, Switzerland)
- b > Both confer comparative advantage as better technology in certain fields will lower opportunity costs to produce its products
- 3. Dynamic comparative advantage
 - a · CA is not static: can change based on industry policies
 - b Government can encourage and develop certain industries by
 - i. Developmental strategy (by importing capital goods)
 - ii. Tax and subsidy policies (research funding, tax reliefs)
 - iii. Labour training and education
 - c > These will allow the country to be able to produce goods at a lower opportunity cost previously impossible due to unskilled labour, lack of capital, high cost etc
 - d
 Eg Singapore focused on labour intensive industry in 1960s, now transforming to knowledge based economy

Limitations in Theory of Comparative Advantage (i.e. Question assumptions)

- Artificial barriers to trade
 - Assumes free trade with no trade barriers
 - In reality, government restrictions like tariffs quotas and preferential trading
 - Restrictions on foreign currency holding also hinder trade
- Natural barriers to trade High transport costs
 - Assumes no transport cost of trading goods
 - In reality, transport costs like freight charges, packing and handling expenses, insurance premiums
 - Add significant margin to cost of good
 - Thus trade patterns are determined by both comparative advantage and transport costs
 - Additional costs dampen gains from trade arising from CA
 - Eg Malaysia and Indonesia remain Singapore's large trading partners despite other countries having greater CA in producing certain goods due to proximity and hence lower transport costs
- Natural barriers to trade Lack of factor mobility
 - Assumes perfect factor mobility
 - In reality, resources are not so mobile and not efficient in producing all kinds of goods and services
 - Structural unemployment due to occupational immobility
 - Eg low skilled labout lack skills for capital intensive industry in a country with such

 $CA \rightarrow$ this factor is not mobile between industries and is inefficient in this industry

- Natural barriers to trade Increasing cost of production
 - Assumes constant returns to scale (linear PPC)
 - In reality, diminishing returns set in beyond a certain level of output (concave PPC)
 - This is because expansion of industry drive up factor prices hence increases average cost of production, or
 - Necessitates use of factors that are less suited for this type or production
 - Hence countries do not specialise completely, and have partial specialisation
 - Market imperfections and imperfect knowledge
 - Difficult to work out differences in opportunity cost hence difficult to know which

country has comparative advantage in which sector \rightarrow can estimate only

Effects of International Trade

Advantages

Microeonomic

- Greater world output and higher consumption
 - Without trade, consumption is limited by PPC
 - With trade, countries can consume beyond the PPC at previously unattained levels
 - Specialisation allows total world output to increase as each country can produce specialised goods at a larger scale at a lower cost
 - Higher levels of consumer welfare due to higher levels of consumption
- Reduction in unit COP (Economies of Scale)
 - Internal economics of scale
 - Savings due to expansion of firm, such as financial, management, technical economies of scale
 - Small countries: previously too small to exploit IEOS, produce everything at

high cost \rightarrow now can specialise in limited range of products but at larger scale

 \rightarrow reap IEOS

- Large countries: specialise even more an reap IEOS in submarkets
- External economies of scale
 - Savings to all firms as a result of expansion of the industry
 - Economies of concentration: many firms together, build training facilities, specific infrastructure to cater to industry, thus caving costs for individual firms to supply these stuff
 - Savings allow firms to transfer to lower costs, raising consumer welfare
 - Also allow firms to spend more on R&D, hence improving quality of goods or lower cost of production by developing new technologies
- Increase consumer surplus
 - Trade exposes domestic producers to foreign competition
 - Rise in competition \rightarrow incentive to cut costs \rightarrow fall in COP \rightarrow fall in prices \rightarrow

increase in consumer surplus

- Increase consumer choice
 - Proliferation of differentiated products, wider array of brands give more consumer choice, real or imaginary

Macroeconomic

- Stimulate economic growth and development
 - **Domestic firms can produce for international market** \rightarrow X increases \rightarrow (X-M rises)

 \rightarrow AD rises \rightarrow actual growth, lower unemployment, higher RNY

■ More conducive business environment → increase in domestic I and FDI in the form

of factories and machinery \rightarrow I increases \rightarrow AD rises \rightarrow actual growth

Trade facilitate exchange of ideas and technology \rightarrow increase productive capacity

 \rightarrow AS shifts right \rightarrow potential growth

- Help LDCs leapfrog stages in economic development by bridging technological gap between countries quickly
- Lower inflationary pressures
 - Cheaper imports: due to specialisation, costs of producing M is lower \rightarrow CPI falls \rightarrow lower inflation rate
 - Fall in price of imported raw materials \rightarrow fall in COP \rightarrow increase in AS and lower GPL/lower inflation
 - Increase competition in home market \rightarrow prevent complacency \rightarrow strive for greater

efficiency, cut costs and improve product quality \rightarrow cut prices \rightarrow lower inflation

- Dynamic gains from trade
 - Higher economic gains from trade \rightarrow higher savings \rightarrow higher capital accumulation
 - \rightarrow higher I \rightarrow even higher economic growth (virtuous cycle)
- Improvement in BOP
 - Increase in $X \rightarrow BOT$ improves \rightarrow current account improves
 - Increase in inward FDI → financial account improves
- Promote beneficial political links
 - Cooperation between governments in joint projects contribute to stronger ties

Disadvantages

Microeonomic

- Unfair competition and dumping
 - Dumping: selling of goods in overseas markets below the marginal cost of production
 - By undercutting prices to drive out rival producers in importing country \rightarrow establish

monopoly \rightarrow allocative inefficiency in LR

- This unfair competition usually because of subsidisation in home country allowing a very low cost of production
- Import of harmful goods
 - Harmful goods like alcohol, drugs, tobacco, pornography
 - Adverse effects on consumption habits, social values, and can have negative externalities to third parties

Macroeconomic

- Susceptibility to external shocks
 - Specialisation narrows a country's economic structure
 - Result in overreliance on other countries for certain goods
 - This makes the country susceptible to economic decline
 - Recession in trading partner \rightarrow TP income falls \rightarrow purchasing power of TP falls \rightarrow

domestic X falls \rightarrow (X-M) falls \rightarrow AD falls, fall in actual growth and employment

- Structural rigidity → susceptible to external induced unemployment and fall in AD
- Susceptible to import-push inflation when M-source countries experience inflationary pressures
- Governments should diversify trading parrtners
- Increased risk of structural employment
 - Decline of "sunset" industries that can no longer compete in market due to specialisation in other industries or more efficient foreign industry
 - Labour have mismatch of skills and lack occupational mobility to move
- Worsening of BOP
 - If trade results in more M instead, (X-M) falls \rightarrow BOT worsen \rightarrow current account worsens

Increase in FDI outflow \rightarrow financial account worsen

- Widening income disparity
 - Rapid growth tend to provide more opportunities for the skilled and talented
 - Specialisation \rightarrow some industries grow fater than others \rightarrow demand for certain

types of labour increase, while others fall \rightarrow wages increases faster in some

industries than others \rightarrow income disparity

Protectionism

Definition: Measures taken to shelter domestic industry from foreign competition through imposing artificial trade barriers.

- Import tariff
- Non-tariff trade barrier/Quota
- Export subsidy
- Foreign exchange control
- Embargoes
- Free trade agreements
- Domestic-favouring restrictions such as production requirements and labels
- Other measures: voluntary restriction, preferential treatment when handing licence

Justifications for protectionism

- 1. Protect infant industry: shield infant industries from foreign competition to give time to expand production and develop a comparative advantage
 - a
 Difficult to pinpoint which infant industries have a potential of developing CA
 - b
 Opportunity cost involved in developing infant industries
 - c
 Permanent infants where such industries rely permanently on government protection to survive
- 2. Protect sunset industry: protect sunset industries that have been outcompeted by foreign firms temporarily to allow retrenched workers to get reemployed to prevent massive structural unemployment
 - a
 Extends allocative inefficiency of producing goods that no longer have a
 comparative advantage in
 - b
 Beggar-thy-neighbour: importers lose out for the sake of domestic firms
- 3. Protect domestic industry from unfair trade: when foreng industries practice dumping by pricing below marginal cost in attempts to drive out rival firms to monopolise the market, protectionism can be used
 - a
 Justified, but should only cover the difference between import price and marginal cost
- 4. To diversify the economy: to prevent vulnerability to external shocks and overreliance on exports, diversifying the economy by producing some goods domestically despite a comparative disadvantage
 - a Although against the theory of CA, is justified in economic theory for long term survival of the country
- 5. To protect against foreign low-wage workers: domestic firms will be driven out when imported goods have lower prices due to low foreign wages
 - a > If foreigners have low-wage because they have CA, then this is outright rejection of the theory of CA
- 6. To correct a BOP deficit: by making domestic exports more price-competitive, hence

increase quantity demanded for domestic exports and lower quantity demanded for foreign imports

- a
 Short term measure, should target root cause such as a relatively higher rate of inflation
- 7. To increase national income and employment in times of recession: short term emergency measure during recessions by shifting income to foreigners in buying imports to domestic firms when buying local goods
- 8. To increase government revenue: through taxing imports that are price inelastic as a source of revenue
- 9. As a bargaining tool for other countries: a retaliative measure during negotiations
 - a Detrimental to world trade and can trigger import tariff wars
- 10. Political reasons
 - a To produce domestic military equipment to fear of being cut off during wars
 - b > As a mean to voice political displeasure such as disagreements
- 11. Social reasons
 - a > Protect agricultural industry to prevent excessive rural-urban migration and encourage domestic production of food
 - b Protect against import of harmful goods like alcohol, cigarettes, pornography

Globalisation

Definition: growing economic interdependence between countries with increasing crossborder transactions in goods and services (trade), free capital flow and labour migration.

Causes of globalisation

- 1. Reduction in transport costs: allow gains from specialisation and trade to be enjoyed between far-away countries as cheaper transport costs no longer outweigh the differences in relative opportunity costs; also facilitate labour migration
- 2. Improvements in information and communication technology: easier to identify and pursue economic opportunities through investments onlinen, easier transfer of assets across borders and international banks, easier communication between headquarters and overseas partners
- 3. Regional economic integration: greater interconnection between governments in terms of lower trade barriers in free trade agreements (FTAs), immigration policies

Effects of globalisation

- 1. On international trade
 - a Free trade agreements (between 2 countries)/economic unions (a group of countries)
 - b Trade creation: trade from a higher-cost producer to a lower-cost member country
 - c > Trade diversion: shift in trade from a lower-cost non-member country to a highercost member country due to higher costs cause by tariffs imposed
 - i. World welfare reduction as countries no longer trade with the country with the natural comparative advantage
 - d
 But either way, the country now trades with a country of lower cost since that consume the good at a lower price than before

e • See international trade notes for other benefits

2. On capital flows

- a

 FDI: movemen of capital that involves foreign ownership and control of production facilities
- b
 Benefits to recipient of FDI
 - i. Improvement in capital/financial account and hence BOP (capital inflow)
 - ii. FDI in the form of factories and machines, increased fixed capital formation increase I and hence AD by multiplier effect, decrease cyclic unemployment
 - iii. Establishment of factories and other productive facilities create employment
 - iv. Generate coporate tax revenue for government
 - v. Investment increase capital accumulation and can increase productive capacity of the economy, bring in technical expertise, resulting in potential growth
 - vi. If foreign firms are export oriented, the country's X can increase, improving AD and BOP in the long run
- c Costs to recipient of FDI
 - i. Small pockets of wealth may result from FDI, but domestic sector remain poor, unequal growth results in income disparities
 - ii. Destruction of the environment leading to negative exteranlities like pollution
 - iii. Increase in monopoly power when foreign firms undercuts domestic industry
 - iv. Decreased domestic investment due to physical crowding out effect by competing with domestic industries for resources and space
 - v. Dutch disease, capital inflow results in appreciation of currency, reducing price competitiveness of domestic exports
 - vi. Instability of BOP and ER with constant inflow and outflow of capital
- d 、 Benefits to source of FDI
 - i. Investment abroad stimulate export of machinery and other capital goods, stimulate AD by multiplier effect and reduce cyclic unemployment
 - ii. Export rise in the long run as recipient countries enjoy economic growth with higher national income, they have greater purchasing power to buy exports from source country
 - iii. Return flow of income like interests and dividends back to source country, imporving current account and BOP
- e Costs to source of FDI
 - i. Worsening of capital and financial account in the short run
 - ii. Declining employment as production is shifted overseas
 - iii. Exports could fall if export base shifts to recipient country and supply goods directly from there, displacing trade from source country
 - iv. Imports increase if recipient country is labour abundant and produces labour intensive products and source country is capital intensive (i.e. Recipient country has CA over source country)
 - v. Fall in tax revenue from investing firms
- f Performance requirements placed on foreign firms, including percentage of domestic employees, percentage of profits repatriated etc.
- 3. On labour migration

- a > International migration: movement of people between countries in which they plan to reside for a noticeable period of time
- b Production factors move from abundant countries to scarce countries in reponse to different in returns (wages)
- c > Benefits to recipient of labour
 - i. Migrantss workers more willing to supply labour at lower wages, resulting in increase in supply of labour, lowering wages, COP and increase AS
 - ii. Brain gain when skilled labour immigration, increase quantity and quality of labour, increase productivity, productive capacity, leading to potential growth
 - iii. Outward shift of AS leads to actual growth, i.e. Non-inflationary sustainable growth, actual accompanied by potential growth
- d 、 Costs to recipient of labour
 - i. Widening income gaps as migrant workers lower low-skilled worker wages while professionals push up high-skilled worker wages that are complementary to their expertise
 - ii. Drain on government resources as a result of immigration of unskilled workers due to greater employment instability and higher social maintenance costs, including welfare payments (short run, their children enter workforce and pay taxes in the long run)
 - iii. Increase external costs such as crowding, noise, conflict, crime
- e > Benefits to source of labour
 - i. Increase in remittances from emigrated workers contributing to
 - 1. GNP: improve standard of living
 - 2. Capital source of funds for investment purposes spurring both actual and potential growth
 - 3. Improving current account and hence BOP
- f Costs to source of labour
 - i. Dutch disease as remittance inflow cause appreciation of currency, causing exports to lose price competitiveness
 - ii. Brain drain, emigration of high skilled workers represent loss in quantity and quality of labour, leading to limitations in potential growth
- g Benefits to world economy
 - i. Equalisation of wages between countries: labour migration from low wage,

high labour supply country to high wage, low labour supply country ightarrow

increase in supply in recipient, decrease in supply in source \rightarrow fall in wages in

recipient, increase in wages in source (assumes homogeneous and mobile labour)

ii. World output increases: immigration from country with low productivity to country with high productivity \rightarrow loss of output value in source less than gain

in output value in recipient \rightarrow net increase in world output

Globalisation and Singapore

"to support its entrepot and regional export platform functionalities by maintaining and developing Singapore=based access to key international markets." Benefits to Singapore

- 1. Actual growth and higher employment (larget markets \rightarrow increase in X and thus AD)
- 2. Dynamic gains (economic growth \rightarrow savings increase \rightarrow loanable funds increase \rightarrow

interest rates fall \rightarrow investment increase \rightarrow increase in capital accumulation \rightarrow further

actual and potential growth)

- 3. Reduction in inflationary preasures (cheaper imports, cheaper imported raw materials and incentive to cut cost when exposed to international competition)
- 4. Economies of scale from specialisation
- 5. Healthy competition \rightarrow reduction in prices leading to increased consumer welfare

Costs to Singapore

- 1. Greater susceptability to external shocks due to overdependence
- 2. Rising structural unemployment
- 3. Rising income inequality