

# Central Economic Problem

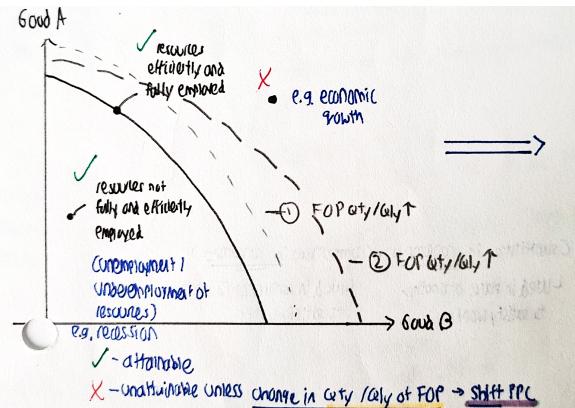
## Factors of Production

- CELL: Capital, Entrepreneur, Land, Labour (Economic Growth Notes)
- Changes in QTY/ QLY will shift PPC

## PPC

PPC shows the maximum combination of 2 goods that an economy can produce in a given time period, given that resources are fully and efficiently employed.

→ Implicit assumptions: pdtn of only 2 gds, qty/qly/ level of tech fixed within given time period, resources are fully and efficiently employed



## What does PPC show?

- Scarcity (points outside PPC)  
Wants will always be unlimited relative to resources → satisfaction of some wants triggers other wants → ∴ scarcity cannot be eliminated (but shortages can be eliminated)
- Choice (movement along PPC)  
Choice of combination of 2 gds to produce
- Opp cost (PPC is concave to origin)  
Benefit of next best alternative forgone  
Resources are not homogenous → some resources are more suited for the pdtn of some gds → if concentrate pdtn of 1 good → use resources that are less suitable → increasing units of good need to be scarified to obtain additional iunit of another good
- Pareto efficiency: Achieved when you cannot make someone better off without making someone worse off.
  - **Productive efficiency:** Achieved when firm chooses the least cost combination of inputs to produce the maximum level of output possible from these inputs; produce on LRAC (all points on the PPC)
  - **Allocative efficiency:** Achieved when the current combination of goods and services produced and consumed maximizes societal welfare; P=MC. (one point on PPC)

## Shifts of PPC

- Parallel: 2 industries **benefit equally** from improvement of FOP
- Non-parallel: 2 industries **don't benefit equally** from improvement of FOP

N.B. PPC will usually shift **outwards** for man-made events.

## Using concept of opp. cost, explain the central problem that all societies have to solve [10]

### [Introduction]

- Central problem: scarcity
- Why? Due to the presence of limited resources e.g. CELL but unlimited wants.
- Impact? All societies have to make a choice as to WHAT TO PRODUCE, HOW TO PRODUCE and FOR WHOM TO PRODUCE → any choice made will incur opp. cost (benefit of the next best alternative forgone) → illustrated using the PPC
- Condition: use scarce resources efficiently to achieve allocative efficiency whereby societal welfare is maximised

### [Body]

- Point Central problem of scarcity forced all societies to make choices and incur opp. cost
  - Explain scarcity is the situation whereby limited resources are insufficient to satisfy unlimited wants. Hence societies have to make a choice as to what goods to produce with the limited resources. Society will forgo other goods by doing so, incurring opp. cost.
  - Example Sg has limited land due to geographical size. Land can be used to build infrastructure like roads or housings or factories. When sg govt chooses to build more roads, it will incur opp. cost of the housing or factory that could have been built on same piece of land → govt. has to weigh opp cost against benefits of their choices to decide which best maximises societal welfare
  - Link due to scarcity of resources, societies have to make choices and give up next best alternative → opp. cost concept effective in explaining scarcity
- 
- Point concepts of scarcity, choice and opp. cost can be illustrated on the PPC
  - Explain PPC shows the max. combination of goods and services that can be produced in a society given the level of resources and technology; it is assumed that society only produces two types of goods capital and consumer goods
  - Example point outside ppc curve depicts unlimited wants that cannot be satisfied due to limited resources; if society is currently producing at point \_\_\_, to produce at point \_\_\_, \_\_\_ amount of capital goods must be given up. → opp. cost is incurred in deciding how much to produce on ppc
  - Link benefits of choice are weighed against opp. cost in deciding what to produce
- 
- Point central problem of scarcity implies that societies must **use limited resources efficiently** such that **scarcity is minimised** and **societal welfare is maximised**
  - Explain all societies must **efficiently allocate resources** to produce an **optimal** amount of goods (what to produce) this is because the rise in prod of some goods will lead to the fall in prod in some other goods → affect societal welfare

- Example prod more consumer goods → ↑ current SOL of society but affects society's ability to grow in LR and lowers extent to which ppc can shift outwards → lower EG in future
- Link societies will be less able to minimise scarcity in LR
  
- Point Societies must also decide on the most efficient method of prod (how to produce)
- Explain producers want to use limited resources to produce goods that bring them highest profits
- Example car producer will use most cost efficient method to produce cars and yield higher profits. If use of capital is cheaper than labour, producers will produce cars using more capital goods → incurs opp. cost as capital goods can be used to produce other goods
- Link opp. cost helps economy decide which producers should produce what goods and how prod. should be done

### **Evaluation Points**

The more the economy chooses to divert resources to produce capital goods currently → current SOL adversely affected but in future, country will face higher EG → enjoy higher SOL. However, if country is open to trade, can choose to produce only capital goods → they can be used to trade for consumer goods

# Market Economy

## Demand and Supply

	Demand	Supply
Definition	qty of gds that cr <u>willing and able to buy at each possible price during a given period of time, cp</u>	qty of gds that pr <u>willing and able to sell at each possible price during a given period of time, cp</u>
LOD/ LOS	In a given time period, qty dd <u>inversely proportional</u> to price, cp.	In a given time period, qty ss <u>directly proportional</u> to price, cp.
Remarks	Derived Demand: e.g. → increase in DD for energy (biofuels) lead to increase in DD for crops like wheat, corn, sugarcane to produce ethanol, also, Factor Mkts	
Explanation	LDMU	MC
Determinants	TIGERSIP	TIGERSO

	P	Q
↑DD	↑	↑
↓DD	↓	↓
↑SS	↓	↑
↓SS	↑	↓

	↑DD	↓DD
↑SS	↑Q, P (?)	Q (?), ↓P
↓SS	Q (?), ↑P	↓Q, P (?)

## Determinants of Demand

T	Taste and Preferences	E.g. ↑DD for Toyota cars due to fuel efficiency, ↓ DD for flights to Middle East / US / UK for fear of terrorist attacks
I	Income	<p><b>Normal Goods:</b> ↑ income → ↑ p.p → ↑ DD for normal good N.B. Differentiate necessities e.g. food vs luxury goods e.g. first class seats (YED concept)</p> <p><b>Inferior Goods<sup>1</sup>:</b> ↑ income → ↑ p.p → ↓ DD for inferior goods e.g. hawker food</p>
G	Government Policy	<p><b>Direct taxes to discourage consumption:</b> ↑ P of good → assuming income constant, ↓ p.p., ↓ DD of good</p> <p><b>Subsidies to ↑ consumption:</b> ↓ P of good → assuming income constant, ↑ p.p., ↑ DD</p> <p><b>Campaigns</b> → change Tastes and Preferences</p>

<sup>1</sup> goods that have better quality substitutes

E	Expectations	<b>Price changes:</b> Expect to $\uparrow \rightarrow \uparrow$ current DD (leads to hoarding and stockpiling of supplies) Expect to $\downarrow \rightarrow \downarrow$ current DD (purchase later when price is lower)  <b>Income changes:</b> Expect to $\uparrow \rightarrow \uparrow$ current DD Expect to $\downarrow \rightarrow \downarrow$ current DD
R	Related Goods	<b>Substitutes in consumption/ goods in competitive demand (<math>XED &gt; 0</math>)<sup>2</sup>:</b> $\uparrow P_{pepsi} \rightarrow \downarrow Qd$ of pepsi $\rightarrow \uparrow DD$ coke  <b>Complements in consumption/ goods in joint demand (<math>XED &lt; 0</math>)<sup>3</sup>:</b> $\uparrow P$ bread $\rightarrow \downarrow Qd$ of bread $\rightarrow \downarrow DD$ for jam
S	Seasonal Factors	Valentine's day $\rightarrow \uparrow DD$ for chocolates and flowers <u>OR</u> CNY $\rightarrow \uparrow DD$ for bak kwa
I	Interest Rate/ Ease of Credit	<b>Interest Rate:</b> decrease i/r $\rightarrow$ decrease COB $\rightarrow$ increase DD + decrease reward to saving and opp cost of spending $\rightarrow$ increase DD  <b>Ease of credit:</b> greater ease of credit $\rightarrow$ easier to borrow money for spending esp on big ticket items $\rightarrow$ increase DD
P	Population size/ structure	<b>Population size :</b> $\uparrow$ size $\rightarrow$ increase DD <b>Population composition:</b> ageing population $\rightarrow$ increase DD for healthcare services and pdts

### Determinants of Supply

T	Technology	Improved, sophisticated tech + R&D $\rightarrow$ more output can be produced at a faster rate $\rightarrow \uparrow$ efficiency $\rightarrow \downarrow COP \rightarrow \uparrow$ expected profits $\rightarrow \uparrow SS$
I	Input prices	$\uparrow P$ of FOP(CELL) $\rightarrow \uparrow COP \rightarrow \downarrow$ expected profits $\rightarrow \downarrow SS$
G	Government Policy	<b>Indirect Taxes</b> (imposed on production) $\rightarrow \uparrow COP \rightarrow \downarrow$ after tax profits $\rightarrow \downarrow SS$ (but can be passed on to consumers in the form of higher prices)  <ul style="list-style-type: none"> <li>- Specific Tax: <u>Fixed</u> amount of tax per unit of good (leftward <u>parallel</u> shift) PARALLEL SHIFT)</li> <li>- Ad-Valorem Tax: <u>Percentage</u> of value of good (leftward <u>pivotal</u> shift) <math>\rightarrow</math> amt of tax per unit <math>\uparrow</math> as P <math>\uparrow</math></li> </ul>

<sup>2</sup> goods that can be used in place of one another to satisfy a particular want

<sup>3</sup> goods used in conjunction to satisfy a particular want

		<b>Subsidies</b> → ↓ COP → ↑ expected profits → ↑ SS  <b>Regulations</b> (due to environmental / health concerns) e.g. Antipollution devices ↑ COP of cars → ↓ expected profits → ↓ SS
E	Expectations of Price Level	Expect to ↑: hold back SS now, ↓ SS <u>OR</u> Expect to ↓: sell more now, ↑ SS
R	Related Goods	<p><b>Goods in Competitive Supply</b><sup>4</sup></p> <p>↑ P biofuel → ↑ expected profits so ↑ Qs of biofuel → more resources diverted to produce more of biofuels since it is more profitable → ↓ SS other food crops</p> <p><b>Goods in Joint Supply</b><sup>5</sup></p> <p>↑ P beef → ↑ expected profits so ↑ Qs of beef → since beef and leather are goods in joint supply → ↑ SS of leather</p>
S	No. of sellers	Increase no of sellers → increase SS
O	Others	Unexpected events → supply side shock e.g. wars, flooding

### Price Adjustment Process: when either DD or SS shifts

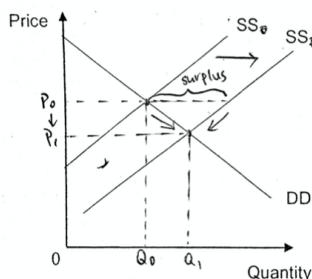


Figure 2: Increase in supply causing surplus

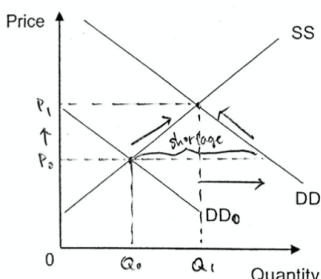


Figure 3: Increase in demand causing shortage

- Surplus( ↑ SS, ↑ SS > ↑ DD/ ↓ DD > ↓ SS)

At initial price  $P_0$ ,  $Q_{ss} > Q_{dd}$ . Sellers cannot sell all they want. A surplus at the original price  $P_0$  leads to a downward pressure on prices. As the price falls,  $Q_{dd}$  increases and  $Q_{ss}$  decreases until a new equilibrium price  $P_1$  and new equilibrium output  $Q_1$  is reached. Surplus is eliminated when  $Q_{dd} = Q_{ss}$ .

- Shortage

At initial price  $P_0$ ,  $Q_{dd} > Q_{ss}$ . Buyers cannot buy what they want. A shortage at the original price  $P_0$  causes an upward pressure on prices. As price increases,  $Q_{dd}$  decreases and  $Q_{ss}$

<sup>4</sup> goods produced using the same resources

<sup>5</sup> goods where increased production of one good leads to increased production of another

increases until a new equilibrium price P1 and new equilibrium output Q1 is reached. Shortage is eliminated when qty dd= qty ss.

## Rational Decision Making

	Consumer	Producer	Government
Objective	Max Utility	Max Profit (not always)	Max Social Welfare
MB	MU	MR	MSB
MC	MC	MC	MSC
Concept	Price Theory	Market Structure	Market Failure

Decision making process based on the marginalist principle i.e. weighing marginal benefits and marginal costs of consumption and production.

### Explaining how rational decisions are made by economic agents.

Weigh MB against MC. Consume/ produce only until the point where  $MB = MC$ .

	Consumer	Producer
MB	DD curve	Eqm Px
MC	Eqm Px	SS curve

### Explaining resource allocation via price mechanism

Explain how resources can be efficiently allocated through price mechanism (10m).

#### [Intro]

- In a free market, price mechanism is a self-regulating system that automatically allocates resources. Prices are determined by forces of DD & SS.
- Define allocative and productive efficiency
- Assumptions for price mechanism to allocate resources efficiently: perfect knowledge, perfect competition, no externalities

#### [What to produce: Signalling and Incentive Function]

- Prices act as signal from consumers to producers as to what good should be produced
- Consumers aim to maximise satisfaction, indicate to producers what to produce through price that they are willing to
- Producers aim to profit maximise, produce those goods to derive higher profits
- When consumers desire more of a good → shortage → competition between consumers for the good lead to upward pressure on prices → producers sense potential higher profits → allocate more resources to produce the good (conversely...)
- Price mechanism allocates resources to the most valued use according to consumers' desire e.g. → consumers desire more smartphones than basic mobile phone → producers divert resources to produce more smartphones
- Allocative efficiency ensured when there is PC in all firms and produce at  $P=MC$

### [How to produce]

- Prices of FOP signal to producers how to produce
- To maximise profits, firms incentivised to use **cheapest combination of FOP** for production
  - e.g. → farmers choose least cost fertiliser for crops

e.g. in Sg price of labour ↑ relative to capital → producers use more capital intensive methods of prod. → lead to productive efficiency

### [For whom to produce] .

- Resource allocation via price mechanism geared towards whoever is willing and able to pay
- HH which own more FOP → higher income and wealth translates to greater ability to pay → more resources allocated for this group
- Poor who own few resources will command low relative prices
- Trade-off between efficiency and equity → prod of biofuels to satisfy wants of car owners and producers divert resources away from food prod → food shortage in 2008
- Price mechanism allocates resources according to wants rather than needs → allocates resources efficiently but not equitably.

### [Conclusion ]

- Price mechanism able to allocate resources efficiently by answering the 3 ques
- But happens only under conditions that do not hold in reality → resources not allocated efficiently and hence govt. needs to intervene!

### Evaluation Points

Justifying SS/DD shift more when there are simultaneous shifts to DD/SS leading to P/Q being indeterminant

	PED	YED	XED	PES
Definition	measures the degree of responsiveness of <b>Qd</b> of a good to a <b>change in its price</b> , cp	measures the degree of responsiveness of <b>DD</b> of a good to a <b>change in consumer's income</b> , cp	measures the degree of responsiveness of <b>DD</b> for one good to a <b>change in price of another good</b> , cp	measures the degree of responsiveness of <b>Qs</b> for a good to a <b>change in its price</b> , cp
Formula	$\frac{\% \Delta \text{ in } Qd}{\% \Delta \text{ in } P} = \frac{\Delta Qd}{\Delta P} \times \frac{P}{Qd}$	$\frac{\% \Delta \text{ in } Qd}{\% \Delta \text{ in } Y} = \frac{\Delta Qd}{\Delta Y} \times \frac{Y}{Qd}$	$\frac{\% \Delta \text{ in } Qd_X}{\% \Delta \text{ in } P_Y} = \frac{\Delta Qd_X}{\Delta P_Y} \times \frac{P_Y}{Qd_X}$	$\frac{\% \Delta \text{ in } Qs}{\% \Delta \text{ in } P} = \frac{\Delta Qs}{\Delta P} \times \frac{P}{Qs}$
Cause	shifts in SS curve	-	-	shifts in DD curve
Effect	movement along the same DD curve	-	-	movement along the same SS curve
Sign	negative ( <b>LOD</b> ): take absolute value	<b>nature of good:</b> necessity, luxury, inferior goods <b>inform DD shift right/ left</b>	<b>relationship between gds:</b> substitute/ complement/ unrelated <b>inform DD shift right/ left</b>	positive ( <b>LOS</b> )
Magnitude	<b>larger magnitude of PED</b> → <b>greater consumer responsiveness</b> to change in price	<b>extent of shift</b> in DD curve	<b>closeness of relationship:</b> extent of shift in DD curve	<b>larger magnitude of PES</b> → <b>greater consumer responsiveness</b> to a change in P
Terminology	good A is <b>relatively</b> price elastic	-	XED of gd A w.r.t gd B	-
Classifications	price elastic DD, unit price elastic DD, price inelastic DD, perfectly price elastic DD, perfectly price inelastic DD	normal goods (necessity with income inelastic DD, luxury with income elastic DD), inferior goods	substitute/ complement/ unrelated gds (can be further classified to cross price elastic/ inelastic)	price elastic SS, price inelastic SS, unit price elastic SS, perfectly price elastic SS, perfectly price inelastic SS
Determinants	<b>number and closeness of substitutes, proportion of income spent on good, time period</b>	<b>degree of necessity</b> of good: Income level of consumer, culture of place of residency of consumer/ stage of dvlpmnt of ctry	-	type of industry, availability of spare capacity, level of stock/ ease of accumulating stock, factor mobility, time period

### **Determinants of PED**

1. Number and closeness of substitutes (best to use this)
  - Ease of switching to alternatives
  - Depends on how broadly the category is defined
    - Narrowly defined market → DD more price elastic
    - Broadly defined market → DD more price inelastic
2. Proportion of income spent (best used when looking at the same good)
  - When good takes up large proportion of income → ↑ P has large impact on remaining disposable income of consumers who have to spend on other goods too  
→ consumers more price sensitive → DD more price elastic
3. Time period
  - SR: DD relatively more price inelastic
  - LR: DD relatively more price elastic
  - Time to find/develop substitutes
  - Ability to implement changes in consumption patterns to reduce consumption of that good

### **Determinants of YED**

#### **Degree of Necessity**

More basic/ important in consumption pattern of HH → lower YED

- Income level of consumer
- Culture of the country/ stage of development of country
- Meat considered necessity for higher income people (DD positive income inelastic) but considered luxury for lower income people (DD positive income elastic)
- Full-service flights considered necessity for business travellers (DD positive income inelastic) but considered luxury by leisure travellers (DD positive income elastic)
- In Asian countries, rice is considered a necessity → DD positive income inelastic

### **Determinants of XED**

Degree of substitutability/ complementary nature as perceived by consumers

## Determinants of PES

### 1. Type of industry

- Affect length and complexity of pdtn process
- **G/s in primary product markets have relatively price inelastic SS** → raw materials like oil: long time for extraction OR crops: takes time for harvest →
- **Manufactured goods have relatively price elastic SS**

### 2. Availability of spare capacity

Presence of (greater) spare capacity → more able to **increase output quickly without substantial increase in cost** → relatively more price elastic supply

### 3. Ease of accumulating stock/ level of stock

- Able to get extra supply of factor i/p → able to respond quickly by increasing o/p
- Able to store finished goods at low cost and w/o loss of quality → able to run down stock/ stock up goods if needed
- Tgt, contribute to relatively more price elastic SS.

### 4. Factor mobility

- Ease of moving FOP from place to place/ use to use
- Higher factor mobility allows firms to **increase input and hence output easily** → SS more price elastic
- Geographical mobility (ease of physically transferring factors from place to place): enhanced if pdtn areas are in **close proximity**
- High property prices in Shanghai → construction firms employ workers from nearby cities and offer accommodation to relocate them → higher geographical mobility of construction workers → SS price elastic
- Factor mobility ( ease of transferring workers from pdtn of one gd to another): irrespective of location, enhanced if workers possess wide variety of skills/ skills required for pdtn of both pdts similar in nature
- Textile production: relatively simple, does not need workers to be highly skilled → increased price of textile, firm can easily employ more workers to increase production → SS price elastic
- Medical industry: requires specific skills, labour needs to be specially trained → increased price of medical services, hospitals unable to employ more medically trained doctors easily within short period of time as FOP not mobile → SS price inelastic

### 5. Time period

- Ability to respond to price changes
- **SR: Relatively price inelastic SS**
- Firms increase output by using facilities to greater capacity, paying workers to do OT → but not easy to reorganise resources for prod of certain goods → cannot respond that well to price changes

- **LR: Relatively price elastic SS**
- Firms can vary all inputs → firms can increase production capacity and new firms can enter industry → existing firms can build more factories or closing existing ones

### **Applications of PED**

#### **1. Firms: Pricing Decision (Maximize TR)**

- For goods with relatively price inelastic DD, ↑ price → less than prop ↓ Qd → ↓TR
- For goods with relatively price elastic DD, ↓ price → more than prop ↑ Qd → ↑TR
- PED may differ across different consumers (∴ charge different prices to different consumers) or change with time/ seasons (∴ charge different prices at different times)
- Travel and hotel industry: travel constraints limits families to travel then during peak periods like school holidays → DD more price inelastic → firms should ↑ P during peak period
- New model of electronic devices like phones → DD price inelastic at first due to less substitutes → firms ↑ P in SR to ↑ TR; but in LR, rival firms develop similar products → DD more price elastic → ↓ P to ↑ TR

#### **2. Firms: Marketing Decision**

- DD of good is price elastic, firm must ↓ P to ↑ TR → but might trigger **price wars**; rival firms undercut each other's prices to protect market share → lead to overall ↓TR  
Solution: **make DD more price inelastic** so as to reduce the degree of substitutability of the product.
- Product differentiation
  - Product development:** real differences i.e. better features, quality, new services; perceived differences
  - Product Promotion:** perceived differences i.e. celebrity endorsement, aggressive advertising)
- Phones: improve quality by improving OS, novel features, variety of colours to suit diff. tastes and preferences → make DD for good more price inelastic
- OSIM has continuously created and innovated new massage technologies to provide "humanised massage"/ advertising by Andy Lau and Lee Min Ho has resulted in their sales going up.

#### **3. Government: Impacts of Taxation**

- a. Collect tax revenue  
Imposing indirect tax on DD inelastic goods
- b. Regulate consumption of goods  
Imposing indirect tax on DD elastic goods

## **Application of YED**

### **1. Firms: Production plans i.e. type and amount to stock**

Strong EG, ↑ incomes, ↑ p.p , ↑ DD for normal goods → firms should:

- ↑ production of normal goods
- make DD for existing goods more income elastic (more luxurious)

e.g. renovate beauty salon to make it more upmarket, offering higher end services; more sophisticated models of \_\_\_\_; personalized services AND/OR ↑ retail outlets / lengthen operating hours esp. those in popular shopping areas

### **2. Firms: Target clientele**

- Informative advertising
- Location plans to target customer
- firms selling normal goods (luxury) should locate business in countries with strong E.G. / in places where people have high incomes e.g. Fairprice and Giant vs. Jasons and The Market Place

### **3. Government: Estimate effects of taxation**

- Changes to direct tax → affect Yd → affect total DD for goods in economy → affect other sources of tax revenue collected
- Expansionary/ contractionary policy

### **4. Government: Guide on how other country's demand for the country's X may change when there are fluctuations to the worldwide economy**

- Type of gd → effect of change in income on DD → proportion of such gds as X → X revenue

## **Application of XED**

### **1. Firms: Pricing strategy**

- Close substitutes i.e. high +ve XED → firms need to exhibit **rival consciousness** → be aware of changes in rival's prices and respond accordingly
- If M1 increases price of subscription, Singtel should not follow suit so as to win over/retain consumers; price cuts in LR may lead to subnormal profits

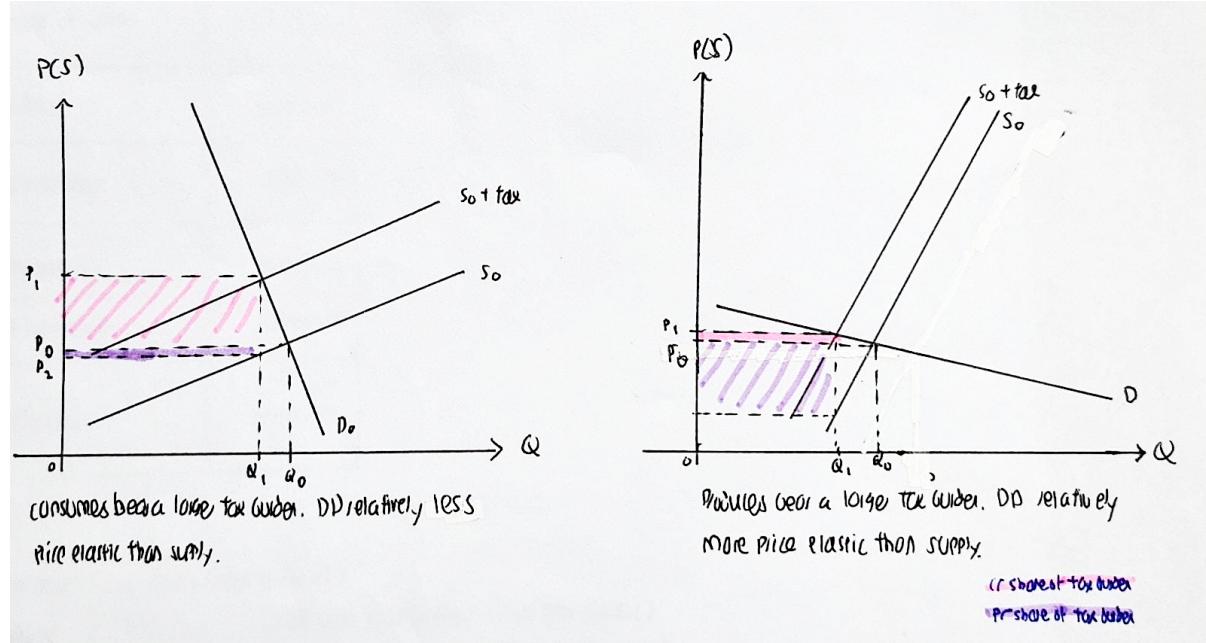
### **2. Firms: Marketing strategy**

- Close substitutes ( $XED > 1$ ):
- Firms can make product **less substitutable** i.e. product differentiation/ promotion/ aftersales service, loyalty rewards, longer warranty etc
- Complements ( $XED < 0$ ):
- Firms can have **business partnerships** with other firms i.e. bundle sales e.g. laptop and computer software, apple and singtel

## Tax/ subsidy incidence

- The relatively more price inelastic side of the market will pay a larger tax burden/ enjoy a larger subsidy incidence, while the government still manages to collect the full value of the tax.

Illustrated with indirect (specific) tax:



## Types of Questions

- Magnitude of  $\Delta P/Q$  i.e. DD + PES / SS + PED
- Change in revenue<sup>6</sup>/ expenditure i.e. SS + PED  
N.B. Seldom look at DD + PES as it is not meaningful to identify if changes in TR is due more to Qd or P
- Simultaneous changes in DD/ SS  
Typically accompanied by XED/ YED to ascertain if DD/ SS shifts more
- Tax/ subsidy incidence  
Relatively more price inelastic party will bear larger incidence

## How to explain DD/SS determinants?

- Explain determinants of DD/SS
- State directional changes to DD/SS
- Diagram + diagram explanation (with the price adjustment process)

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<sup>6</sup> Total expenditure is the total amount spent on the purchase of a good at a given price. It is calculated by multiplying the number of units consumed with the price per unit of the good i.e.  $TR = P \times Q$ .

## How to explain elasticity?

1. Definition of elasticity concept
2. State why its relevant ( $\Delta Y$  or  $\Delta DD$  or  $\Delta SS$  or  $\Delta P_{gdA}$ )
3. Given  $\Delta Y$  or  $\Delta DD$  or  $\Delta SS$  or  $\Delta P_{gdA}$  (i.e.  $\uparrow$  or  $\downarrow$ ),  $DD/P/Qs/Qs \uparrow$  or  $\downarrow$ .
4. Explain with factors/ determinants
5. Diagram + diagram explanation

N.B. Be clear of which market you are looking at + diagrams involving elasticity should only be looking at sole changes to DD/SS, with common intersection point for fairness of comparison

## Evaluation points

- Whether DD/SS change more and why
    - could state what factors are most important because they influence both DD/SS and possibly even PED/PES
  - Use PED/ PES determinants to justify whether DD/SS is price elastic or inelastic
    - could provide other perspectives on variation of PED/PES of goods within the same category/ over time
  - Challenge ceteris paribus assumption
  - Elasticity data could be obtained using historical estimates → effect on P, Q, TR could be under/over-estimated
- 
- Challenge ceteris paribus assumption is not realistic
    - Assumed only one determinant changes at any point in time. In reality, more than one factor changes
    - Difficult to pinpoint what specifically caused change to  $Q_{dd} / Q_{ss}$
    - Oversimplistic e.g. XED of a good not dependent on only one other related good (recall sugar and coffee) + may be affected by DD factors like taste and preferences more
  - Data collected may be inaccurate or unreliable
    - Elasticity values obtained are historical estimates of consumer behaviour
    - Market conditions may have changed, rendering elasticity values rather useless
    - Consumers' taste and preferences may change, market conditions may have changed drastically by the time strategies are implemented
    - Difficulty in collecting data or sample size may be too small to reflect actual elasticity values
  - Strategies that can be adopted may increase TR but also adds to TC  
DD elasticity concepts relevant to help the producer identify best way to maximise revenue. There is a need to maximise cost as well. For example, excessive advertising can lead to wastage of scarce resources and increase cost, leading to uncertain effects on profits. Hence, measures should only be implemented if potential additional revenue is expected to be more than extra cost incurred.

## Equity ≠ Inequality

- Equity is defined as fairness in the distribution of economic welfare.
  - i.e. individuals have access to essential g/s (  /  /  /  ) (involve value judgement)
  - depends on ability to pay (Y)

- Solutions

1. Subsidies and Grants

- a. Subsidies

- Given to producers
- Decrease c.o.p., increase SS, more affordable for poor as essential g/s take up larger proportion of poor's income (equalizing effect), promote equity

- b. Grants

- Given to consumers
- Decrease cost of consuming, increase DD, redistribute income from rich to poor, increase ability of poor to afford necessities, promote equity

- c. Limitations

Imperfect information on amount to give → reliance on government/ ineffective/ strain government budget

2. Social Security

- Given to consumers when they are unable to work to earn Y
- Ensure disadvantaged has access to essential g/s → equity
- Same limitations as in ①

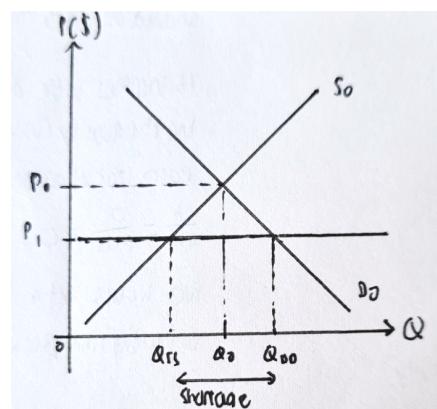
3. ★ Price control: Price ceiling (help consumers by keeping prices low and affordable) (rental market)

Price ceiling is defined as the **highest permissible price** at which a producer can legally charge. It is considered binding/ effective, only if it is set **below the equilibrium price**.

Producers have to sell at a lower price than before, more affordable to consumer, promote equity

Leads to a shortage

Imposed on mkt for essential goods



– Limitations:

i. Ineffective price ceiling

At the price ceiling, identify  $Q_d$ ,  $Q_s$ .  $Q_d > Q_s$ , shortage. Only some amongst the poor will have access to staple foods at a lower price, others will not.

May also lead to black market (whr gds are sold at prices that violate legal restriction due to difficulty controlling and locating the retail of products). Cr resort to buying staple food at higher prices (than legally allowed) prices from illegal vendors. Unaffordable. Some Cr end up paying an even higher price compared to if there weren't any price ceiling.

ii. Short circuit potential changes in Cr & Pr behavior

Theoretically, Crs and Prs observe rise in food  $p_x$ , modify/ change behavior. (i.e. cut  $Q_d$ , increase  $Q_s$ ) H/w, with PC, Cr won't cut  $Q_d$  and Pr won't increase  $Q_s$ , as prices aren't allowed to rise. No signaling and incentive function, cannot allocate resources efficiently, under allocation of resources towards producing staple foods.

iii. Destabilizing jump in staple food prices when price control is removed

When PC is removed,  $p_x$  adjustment process will start to bring market back to equilibrium via upward pressure on  $p_{xs}$ . If rapid and significant, access to staple foods may significantly worsen.

iv. Sellers ration goods according to their personal bias

Goods may not go to the buyer who values it most highly → inefficient and unfair.

v. Long queue

Buyers must be willing to wait in line early for the gd → waste buyer time → inefficient.

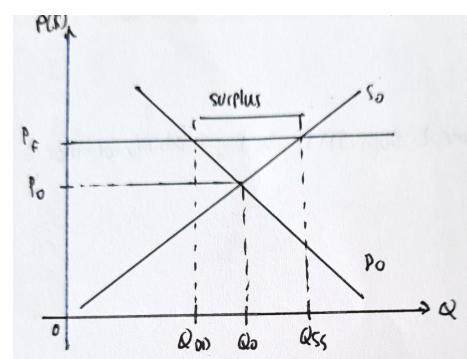
4. ★ Price control: Price floor (help producers by protecting their Y) (minimum wage legislation → deter FDI, unemployment may fall further)

Price floor is defined as the **lowest permissible price** at which a producer can legally charge. It is considered binding/ effective, only if it is set **above the equilibrium price**.

Imposed o markets which experience volatility OR Existing  $p_x$  of g/s deemed too low.

Producers have to sell at a higher price than before, higher income, earn higher profit ceteris paribus, can afford essential g/s, promote equity.

Leads to a surplus



- Limitation:

Buyers purchase goods according to personal bias (from buyers who appeal to these biases) → unfair.

→ Government can...

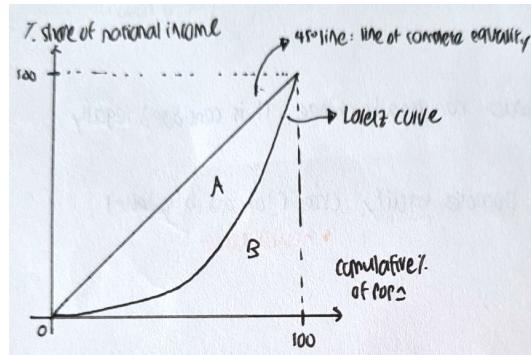
- Purchase surplus (strains budget)
- Lower SS through quota
- Increase DD/ Decrease SS

- Measuring income inequality

Gini coefficient measures the income distribution (income inequality) of a country. It is obtained by looking at the Lorenz curve, a graphical representation of income distribution in a country.

Gini is calculated by measuring the ratio of the area between the Lorenz curve and the  $45^\circ$  line of complete equality to the whole area below the  $45^\circ$  line. This is the ratio of shaded area A to the whole area (A+B). i.e.  $\frac{A}{A+B}$ .

If incomes were distributed equally, the Lorenz curve will be a straight  $45^\circ$  line of complete equality. For e.g. the poorest 20% of households will earn 20% of national income. In this case area A disappears and Gini would be  $\frac{A}{A+B} = \frac{0}{0+0} = 0$ . In contrast, if incomes were distributed very unequally, then we would get a Lorenz curve that is very skewed to the RHS. i.e. Area A will be very big and Area B will be small. Thus, Gini  $= \frac{A}{A+B} = \frac{A}{A+0} = 1$ .



- Income equality (distribution of income) vs equity:

Greater income inequality \_\_\_\_\_ lead to greater inequity.

Ans: May (rich become richer, poor become poorer)

Ans: May not (poor has become richer also, increase access and ability to afford essential g/s)

Income inequality only leads to inequity when income inequality deprives people access to g/s deemed essential