

# Catholic Junior College

## THEME 3: THE NATIONAL AND INTERNATIONAL ECONOMY

### 3.2.2 & 3.2.3 MACROECONOMIC ISSUES & POLICIES ECONOMIC GROWTH

#### ENDURING UNDERSTANDING

Using the macroeconomic indicators, governments can determine which macroeconomic aim has not been achieved at that point in time. The failure to achieve one or more macroeconomic aims leads to macroeconomic issues, which will reduce the standard of living of its citizens. This will have different consequences, depending on the perspectives of the different economic agents.

#### ESSENTIAL QUESTIONS

- Why is the economy not doing well? What causes these problems?
- What are the consequences to the consumers, producers and government if the economy is facing these problems?
- How are the macroeconomic issues related to one another?
- What are the policies available to the government to alleviate the problems?

#### UNIT SUMMARY

You have learnt about the key macroeconomic aims – high, sustainable and inclusive economic growth, price stability, full employment and a favourable balance of payments position and the indicators used to measure if the aims are achieved. You have also learnt about the Keynesian AD/AS framework.

When an economy is unable to achieve these key macroeconomic aims, it is an indication that the economy's performance is not well.

This topic will address the issues of an economy may face as a result of not achieving the aim of sustainable and inclusive economic growth.

It is important to know the 3Cs of macroeconomic problems; namely, they are **causes**, **consequences** and **cures**.

We first examine the **causes** of slow or negative economic illustrating them using the Keynesian AD/AS framework.

We will then understand how the **consequences** of these macroeconomic issues would differ, depending on whether the perspective is taken from the *consumer*, *producer*, or *government*.

Lastly, we will also explore each of these macroeconomic issues in the *Singapore* context.

Next, you will learn more about the **cures (policies)** that the government can implement when faced with slow or negative economic growth.

## CONTENT

### 1 ECONOMIC GROWTH

- 1.1. Definitions and Measurement of Economic Growth & Theoretical Analysis
- 1.2. Undesirable Rates of Economic Growth & Causes of Negative Economic Growth
  - 1.2.1. Decrease in Aggregate Demand
  - 1.2.2. Decrease in Aggregate Supply
- 1.3. Consequences of Negative Economic Growth
  - 1.3.1. Effects of Negative Economic Growth on Producers
  - 1.3.2. Effects of Negative Economic Growth on Consumers
  - 1.3.3. Effects of Negative Economic Growth on Governments
- 1.4. Slow Economic Growth
- 1.5. Costs and Benefits of Economic Growth
  - 1.4.1. Benefits of Economic Growth
  - 1.4.2. Costs of Economic Growth
- 1.6. Singapore's Economic Development

### 2 MACROECONOMIC POLICIES TO ACHIEVE ECONOMIC GROWTH

- 2.1. Fiscal Policy
  - 2.1.1. Tools of Fiscal Policy
  - 2.1.2. Budget Positions
  - 2.1.3. Discretionary Fiscal Policy
  - 2.1.4. Use of Fiscal Policy to Achieve Sustainable and Inclusive Economic Growth
- 2.2. Monetary Policy (Interest rate)
  - 2.2.1. Interest Rate-Centred Monetary Policy
  - 2.2.2. Use of Monetary Policy in Achieving Sustained\* Economic Growth
- 2.3. Monetary Policy (Exchange rate)
  - 2.3.1. Exchange Rate Determination
  - 2.3.2. Exchange Rate Regimes
  - 2.3.3. How the Exchange Rate Policy Works
  - 2.3.4. Use of Exchange Rate Policy in Achieving Sustainable and Inclusive Economic Growth
  - 2.3.5. Singapore's Monetary Policy – Exchange Rate Policy
  - 2.3.6. Effectiveness of Exchange Rate Policy with reference to the Singapore Economy
- 2.4. Supply-side Policy
  - 2.4.1. Market-Oriented Supply-side Policies
  - 2.4.2. Interventionist Supply-side Policies
  - 2.4.3. Supply-side Policies in the AD-AS Framework
  - 2.4.4. Use of Supply Side Policies in Promoting Sustainable and Inclusive Economic Growth

### Glossary & Readings

### Appendices

### REFERENCES

- 1. **Economics**, Sloman, 8<sup>th</sup> ed, 2012, Ch 15, 20, 21, 22
- 2. **Economics in Public Policy**, Tan, et al, 2009, Ch 1
- 3. Roger L Miller 8<sup>th</sup> Edition: Economics Today Pages 780 to 785
- 4. Parkin, M., et al (2001), 5<sup>th</sup> ed, Economics, Ch 34.
- 5. Beardshaw, J., et al (2001), 5<sup>th</sup> ed, Economics: A Student's Guide, Ch 40 & 41
- 6. Maunder, P., et al (2000), 3<sup>rd</sup> ed (revised), Economics Explained, Ch.29

## H2 9570 SYLLABUS REQUIREMENTS

Macroeconomic Issues: **Causes** and **Consequences & Policies (Cures)**

### 1) *Undesirable Rates of Economic Growth*

<b>Causes</b>	<ul style="list-style-type: none"> <li>▪ Demand side: Weak AD</li> <li>▪ Supply side: <ul style="list-style-type: none"> <li>➔ SRAS: higher cost of production</li> <li>➔ LRAS: insufficient resources, such as capital and skilled labour, to sustain growth; structural rigidities that constrain the economy's ability to achieve economic growth in the long run.</li> </ul> </li> </ul>
<b>Consequences</b>	<ul style="list-style-type: none"> <li>▪ Consumers: employment, purchasing power and impact on consumption, hence the impact on material SOL, etc.</li> <li>▪ Producers: Profitability → investment, production, profits, etc.</li> <li>▪ Governments: On other macroeconomic aims such as Price level</li> </ul>
<b>Policies (Cures)</b>	<ul style="list-style-type: none"> <li>▪ Demand management policies: Expansionary policies to tackle weak AD - Fiscal Policies, Monetary Policies (Interest Rate or Exchange Rate)</li> <li>▪ Supply side: Interventionist policies to increase productive capacity (increase LRAS) OR market-oriented policies to reduce structural rigidities and increase efficiency / lower cost of production (increase SRAS)</li> </ul>

Students will need to understand the **causes** of these macroeconomic issues, as well as analyse the **consequences** of these issues from the perspectives of consumers, producers, and governments. In particular, understanding from the Singapore perspective (e.g., BOP account components, role of FDI in Singapore, inclusive growth in Singapore) is important.

Students will then need to understand the **cure** (policies) that the government will implement to tackle the macroeconomic issues. A critical analysis of the effectiveness and limitations of the policies will be applied through the use of criteria such as root cause of the issues, and nature of the economy.

The use of AD/AS analysis to illustrate macroeconomic problems in an economy is required.

## 1 ECONOMIC GROWTH

### **Inquiring Article: Rise/Fall of Singapore Growth Outlook amid Covid-19**

The Singapore economy is expected to shrink between 6 per cent and 6.5 per cent this year, said the Ministry of Trade and Industry (MTI) in another revision to its 2020 outlook after growth data confirmed a smaller-than-expected contraction in the third quarter.

Policymakers also offered for the first time a glimpse of their economic forecast for 2021 – a recovery into positive growth territory, with the economy envisaged to expand between 4 per cent and 6 per cent next year.

Apart from a gradual reopening in June that allowed a reboot in local economic activities, other major economies also emerged from their lockdowns during the quarter, helping the performance of the Singapore economy, MTI said.

As most sectors remained in contraction, manufacturing was the bright spot with a year-on-year expansion of 10 per cent, reversing the previous quarter's dip of 0.8 per cent. The "robust" growth was driven largely by the electronics, biomedical manufacturing and precision engineering clusters.

Other selected sectors that also registered growth include finance and insurance, and information and communications. These were propped up by healthy growth in the banking and insurance segments, as well as resilient demand for enterprise IT solutions, said MTI Permanent Secretary Gabriel Lim at a briefing.

"While some economies like China are expected to see a sustained recovery for the rest of 2020 as their domestic COVID-19 outbreaks remain under control, others like the US and Eurozone are experiencing a resurgence in infections which may dampen their recovery as restrictions are re-imposed to slow the spread of the virus," it explained.

### **"GRADUAL" RECOVERY IN 2021**

MTI expects the Singapore economy to return to growth in 2021 but warned that global risks also persist, according to MTI, which cited the periodic resurgence of infections around the world, a protracted nature of a global economic recovery, the possibility of a "mis-calibration of policy settings" alongside tightening funding conditions, as well as geopolitical uncertainties. at the recovery would be "gradual". Manufacturing, which makes up one-fifth of the Singapore economy, is set to continue its expansion as strong semiconductor demand is set to keep the electronics and precision engineering clusters going.

Growth in the information and communications, and finance and insurance sectors are also expected to remain healthy.

Hard-hit aviation and tourism-related sectors could see a gradual recovery in air passenger volumes and visitor arrivals, as global travel curbs are gradually eased. Improved visitor arrivals and consumer sentiment will also help consumer-facing sectors, such as retail trade and food services.

*Adapted from CNA, 23 Nov 2020*

### **Questions for Inquiry:**

- (a) How has Covid-19 affected the AD and/or AS of Singapore's economy?
- (b) Using AD and/or AS, explain how is the Singapore expected to recover.

## 1.1 Definitions and Measurement of Economic Growth & Theoretical Analysis

**Economic Growth** is defined as an increase in real output of an economy.

Positive growth means that real output has increased while negative growth means that real output has fallen.

In macroeconomics, we will come across 4 main terminologies of economic growth. They are:

- i) Actual Economic Growth
- ii) Potential Economic Growth
- iii) Sustained Economic
- iv) Sustainable Growth
- v) Inclusive Growth

(i) **Actual Economic Growth** is defined as the percentage annual increase in *real* output over time, or the increase in **real GDP/GNP/NNP** over time. It refers to the increase in the quantity of goods and services available to the people in a country.

Actual economic growth is measured by the percentage increase in the real GDP.

The rate of actual economic growth can be calculated by:

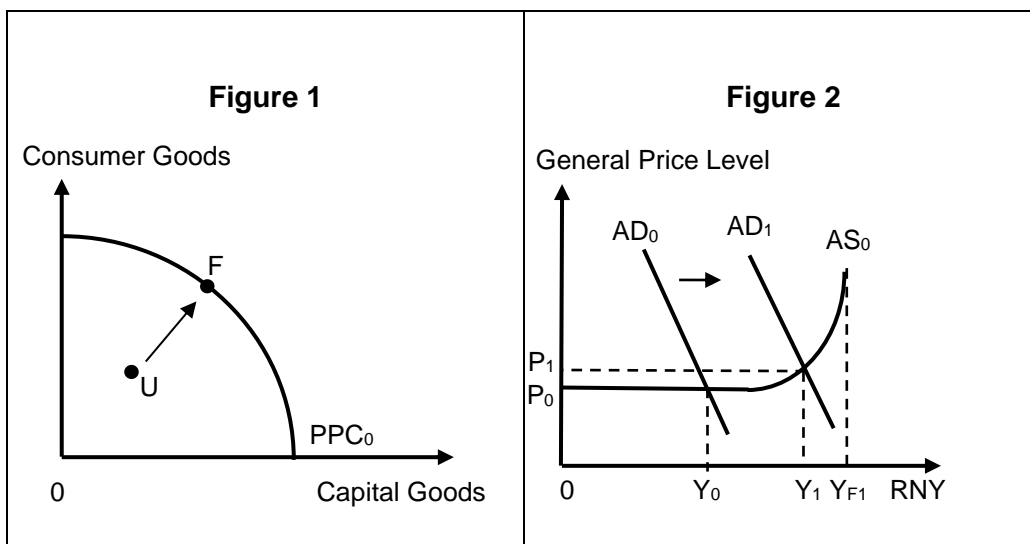
$$\frac{\text{Year 2 Real GDP} - \text{Year 1 Real GDP}}{\text{Year 1 Real GDP}} \times 100\%$$

where

$$\text{Real GDP} = \text{Nominal GDP} \times \frac{\text{Base Year Price Index}}{\text{Current Year Price Index}}$$

Actual economic growth may be illustrated using the PPC or AD-AS analysis.

<u>Actual Growth represented by PPC</u>	<u>Actual Growth represented by AD/AS</u>
<p><b>Actual Economic Growth</b> is shown by a movement from a point inside the PPC to a point closer to or on the PPC (e.g. U to F in Figure 1).</p> <p>This movement is the result of utilization of previously unemployed resources. For example, using machinery to their full capacity and employing unemployed people to produce goods and services.</p>	<p><b>Actual Growth</b> is shown in Figure 2 on the AD-AS model as a rightward movement of the <b>equilibrium real output</b>, e.g. from <math>Y_0</math> to <math>Y_1</math>.</p> <p>Assume that the economy is currently producing at <math>Y_0</math>, where aggregate demand (<math>AD_0</math>) intersects aggregate supply (<math>AS_0</math>). Assuming that the economy experiences an increase in aggregate demand, represented by a rightward shift of the AD curve from <math>AD_0</math> to <math>AD_1</math> as illustrated by Figure 2. The result is an increase in real output from <math>Y_0</math> to <math>Y_1</math>, which illustrates actual economic growth.</p>



**(ii) Potential Economic Growth** is the rate of growth of potential output, which is the output that could be produced with full employment of resources.

While actual economic growth refers to the actual increase in quantity of goods and services produced, potential economic growth concerns the economy's capacity to produce.

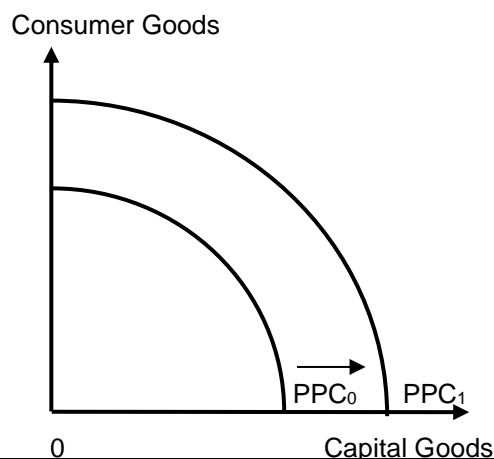
This may be caused by an increase in the:

- quantity of available resources;
- quality of available resources, e.g. higher labour productivity due to the upskilling of or improved organization); and/or
- Improvements in the state of technology

#### Potential Growth represented by PPC

The PPC can also show potential output which is the output that could be produced with full employment of resources. Potential Economic Growth is shown by an outward shift of the curve from  $PPC_0$  to  $PPC_1$  in Figure 3.

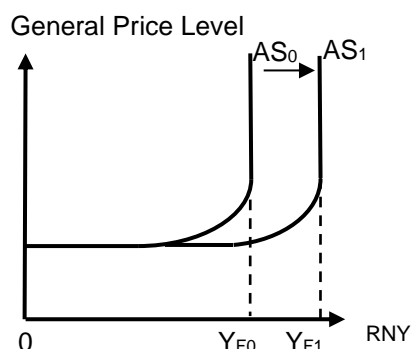
**Figure 3**



#### Potential Growth represented by AD/AS

**Potential Economic Growth** is shown in Figure 4 on the AD-AS model as a rightward shift of the **vertical and intermediate part of the AS curve** from  $AS_0$  to  $AS_1$ . This results in an increase in potential output; that is the maximum real output of the economy has increased from  $Y_{F0}$  to  $Y_{F1}$  as shown in Figure 4.

**Figure 4**



**(iii) Sustained Economic Growth** indicates a rate of growth that can be *maintained* over a period of time without giving rise to high rates of inflation.

This is often referred to as non-inflationary economic growth. Sustained economic growth is a result of an increase in both AD and AS i.e. a combination of actual and potential economic growth.

#### Sustained Growth represented by PPC

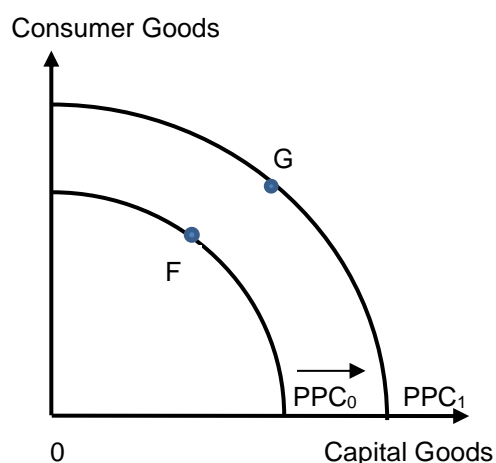
Sustained economic growth can be illustrated through an outward shift of the PPC from  $PPC_0$  to  $PPC_1$  as well as a movement of output point F to G as shown in Figure 5.

When economy has reached full employment, at Point F. There will not be further increases in real output.

A further increase in real output can only be achieved if the potential output increases. The increase in potential output is represented by a rightward shift of the  $PPC_0$  to  $PPC_1$ . increase in PPC.

Hence, an outward shift of the PPC from  $PPC_0$  to  $PPC_1$  as well as a movement of output point F to G indicates **sustained economic growth**.

**Figure 5**



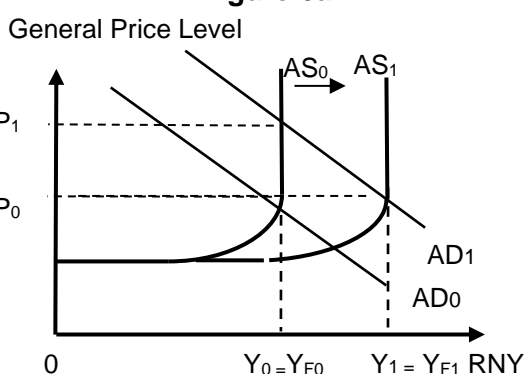
#### Sustained Growth represented by AD/AS

Sustained economic growth using the AD-AS analysis can be illustrated by a shift in both AD from  $AD_0$  to  $AD_1$  and AS from  $AS_0$  to  $AS_1$  as shown in Figure 6a.

When economy has reached full employment, any increase in aggregate demand, i.e. from  $AD_0$  to  $AD_1$ , will not lead to any changes to real output. Only general price level will increase from  $P_0$  to  $P_1$ . In this case, only nominal GDP increases as price increases without any increase in output.

An increase in real output can only be achieved if the potential output increases. This is represented by a rightward shift of the AS from  $AS_0$  to  $AS_1$ . Hence an increase in AS would lead to an increase in both actual ( $Y_0$  to  $Y_1$ ) and potential economic growth, ( $Y_{F0}$  to  $Y_{F1}$ ) respectively. Thus there is **sustained economic growth**.

**Figure 6a**



**(iv) Sustainable Growth** indicates a rate of growth that can be *maintained without creating other significant economic problems* (such as depleted resources, environmental problems, large public debts to repay), particularly for future generations. Thus, sustainable growth implies a *stable* and *positive* growth rate over an extended period of time i.e. sustained economic growth that does not cause problems for future generations.

- (v) **Inclusive Growth** indicates a rate of growth that is *sustained* over a period of time, and is **broad based across economic sectors for the majority of the country's population**. In the case of Singapore, inclusive growth implies economic growth that takes *income distribution* into consideration and does not contribute to income inequality. Thus inclusive growth too implies sustained growth that is enjoyed by the majority of the people in the country.

## 1.2 Undesirable Rates of Economic Growth & Causes of Negative Economic Growth

Undesirable rates of economic growth includes

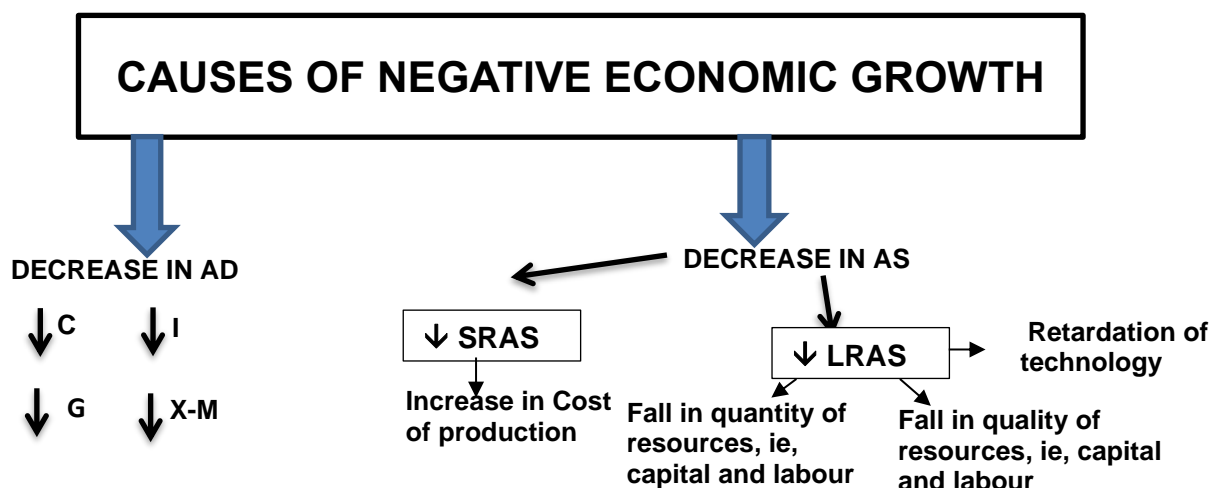
- (i) **negative economic growth**,
- (ii) **low economic growth** as there is the possibility that it may hint at prospect of a recession in future.
- (iii) economic growth rates that are either **unsustainable** and/or
- (iv) **not inclusive**.

We will first explain the causes and consequences of negative economic growth. Economists often talk about an economy experiencing a recession. Increasing slack develops in the economy, which is, an increase in spare capacity.

A **recession** is defined as a period of two consecutive quarters of **negative economic growth**. This occurs when there is a decline in economic output.

Two main causes of negative economic growth are:

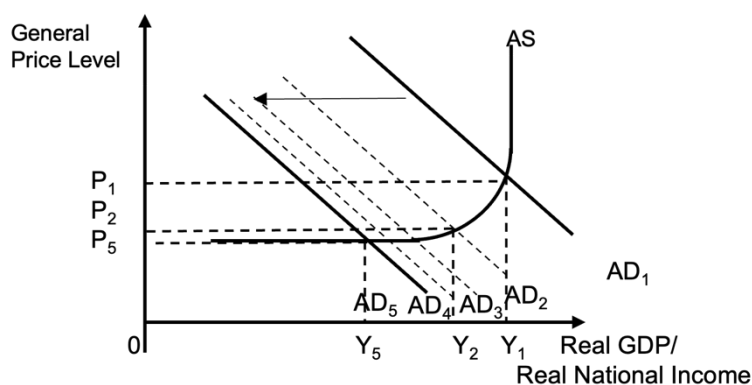
- i) Decrease in Aggregate Demand (AD); and
- ii) Decrease in Aggregate Supply (AS).



### 1.2.1 Decrease in Aggregate Demand

Figure 8 shows the effect of a decrease in aggregate demand on the economy. Initial real output is at  $Y_e$ . When aggregate demand decreases from  $AD_0$  to  $AD_1$  the economy will experience a fall in real output from  $Y_0$  to  $Y_1$ . Hence there is negative economic growth. The section below will show you the relevant economic analysis of how negative economic growth results from AD falling.



Figure 8: Decrease in Aggregate Demand

Acronym	Steps	Description
A	1. AD/AS Factor and Component	A factor that causes a fall in C, I, G or X-M (refer to 3.1 <i>Introduction to Macroeconomics Lecture Notes Section 2.2</i> ) will cause a change in the component of AD. E.g.: <ul style="list-style-type: none"> <li>- Rise in Interest Rates → Rise in Cost of Borrowing → Fall in C and I</li> <li>- Poor economic outlook → Fall in C and I</li> </ul>
S	2. SHIFT of AD/AS	The fall in autonomous C, I, G or X-M will then result in AD falling from AD <sub>1</sub> to AD <sub>2</sub> .
A	3. ADJUSTMENT process	A fall in AD will result in a fall in Real National Income from Y <sub>1</sub> to Y <sub>2</sub> .  This will then lead to a fall in income induced consumption and thereafter, a further fall in AD. This triggers many successive rounds of decrease in national income and income induced consumption. At each round, the decrease in both gets smaller.  The multiplier process will end when the decrease in national income is too small to generate further decreases in induced consumption.  The autonomous fall in AD from AD <sub>1</sub> to AD <sub>2</sub> results in a multiplied decrease in RNY from Y <sub>1</sub> to Y <sub>5</sub>
P	4. END POINT	This results in negative actual economic growth.

**Self-Assessment 1**

- 1) A rise in Prices will lead to a fall in AD. **True/False**
- 2) A fall in export earnings will lead to a fall in AD. **True/False**
- 3) A fall in real wages will lead to a fall in AD. **True/False**

### 1.2.2 Decrease in Aggregate Supply

Negative economic growth can also be caused by a decrease in aggregate supply.

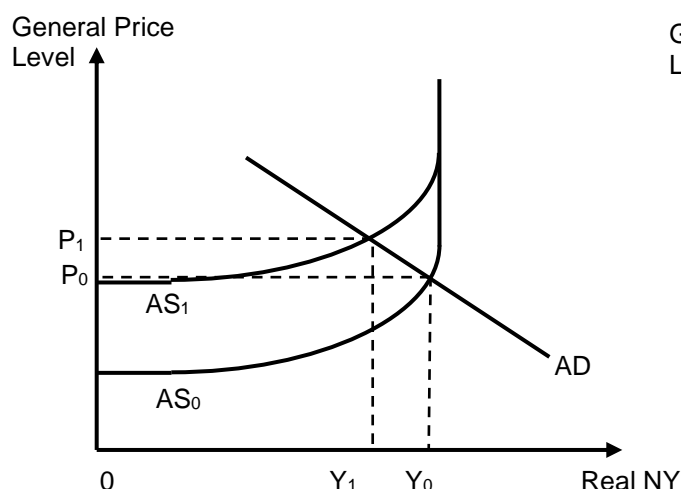


Fig 9(a): Fall in SRAS (due to rising COP)

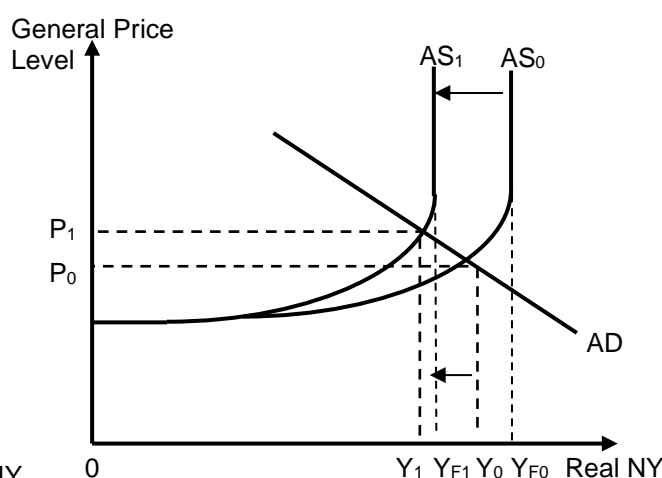


Fig 9(b): Fall in LRAS (due to changes in Productive Capacity)

#### Fall in SRAS

Acronym	Steps	Description
A	1. <b>AD/AS Factor and Component</b>	When there is an increase in the price of factor inputs (CELL), there will be a rise in the cost of production. As such, to maintain profitability, firms will be willing to sell each level of output only at a higher General Price Level.
S	2. <b>SHIFT of AD/AS</b>	Thus, SRAS will decrease, shifting up as in figure 9(a).
A	3. <b>ADJUSTMENT process</b>	-
P	4. <b>END POINT</b>	According to Figure 9(a), the initial equilibrium level of real output is $Y_0$ . When aggregate supply decreases from $AS_0$ to $AS_1$ due to rise in costs of production, the economy will experience a fall in the level of real output from $Y_0$ to $Y_1$ . Hence, there is a negative economic growth leading to an increase in unemployment level and a higher general price level ( $P_1$ ). Note that a change in SRAS does not affect full employment output level and potential EG.

#### Fall in LRAS

Acronym	Steps	Description
A	1. <b>AD/AS Factor and Component</b>	A fall in: <ul style="list-style-type: none"> <li>- Quantity of resources- Labour: size of labour force; quantity of capital stock; Land: the depletion of natural resources</li> </ul>

		<ul style="list-style-type: none"> <li>- Quality of resources- Labour productivity (output per man hour); the efficiency of capital goods</li> <li>- Technology</li> </ul> <p>will reduce the country's productive capacity.</p> <p>This is because a fall in the quality of resources will result in falling efficiency, which reduces the quantity of output per unit input. Thus, resulting in a reduction of a country's productive capacity.</p> <p>In addition, the fall in the quantity of resources will reduce the country's potential output. For example, when firms reduce spending on investment, such that the amount of capital created is not enough to replace those which have worn out, the country's stock of machinery and its productive capacity will be reduced.</p>
<b>S</b>	<b>2. SHIFT of AD/AS</b>	Ceteris paribus, LRAS will decrease (Shifts to the left)
<b>A</b>	<b>3. ADJUSTMENT process</b>	-
<b>P</b>	<b>4. END POINT</b>	According to Figure 9(b), the initial equilibrium level of national output is $Y_0$ . When aggregate supply decreases from $AS_0$ to $AS_1$ , the economy will experience a fall in the level of real output from $Y_e$ to $Y_1$ . At the same time, the fall in LRAS also results in a fall in potential EG from $Y_{F0}$ to $Y_{F1}$ .

*Note: These are only selected factors affecting AS. Refer to previous lecture notes 3.1 Introduction to Macroeconomics (Section 2.4) for other possible factors.*

### 1.3 Consequences of Negative Economic Growth

Economic growth is one of the key indicators that economists use to assess a nation's economic well-being. Negative rates of economic growth affect the economic agents differently, from consumers, producers to the governments.

#### 1.3.1 Effects of Negative Economic Growth on *Producers*

Negative economic growth may result in consequences on a firm's investment, production and employment.

Negative economic growth results in poor investor confidence. As consumers are less willing and able to spend, their demand for the firms' goods will fall and result in lowered level of profits for the producers.

Furthermore, firms expect lower profitability in the future, and thus cut back on production. This lowers their derived demand for labour, and thus they start employing less. They also cut back on further investments in view of economic pessimism.

### **1.3.2 Effects of Negative Economic Growth on Consumers**

Negative economic growth has an impact on a consumer's purchasing power, employment, saving, consumption and thus standard of living (SOL).

Negative economic growth causes **real** income to fall. Hence, real income per capita may fall, assuming population size remains constant. Furthermore, unemployment also arises as firms lay off workers. This leads to a fall in purchasing power of consumers, resulting in a fall in consumption. The fall in the quantity of goods and services consumed will lead to a fall material SOL.

With higher unemployment as a result of negative growth, the country runs a higher risk of social and political instability, there may also be higher stress rates which affects health, life expectancy may then fall and a lowered level of HDI may result, thus then leads to a deterioration of quality of life and thus a fall in non-material SOL.

### **1.3.3 Effects of Negative Economic Growth on Governments**

Negative economic growth also affects governments' decision making, which may impact other macroeconomic objectives, in particular, full employment.

Negative economic growth will lead to reduction in tax revenue. The amount of tax collected is directly related to national income, i.e. the amount of income and corporate tax collected will fall with a decrease in national income. With less government revenue, the government may face challenges in maintaining spending on existing programmes for poverty alleviation, provision of merit goods (better schools, hospitals) and other social services. It will be difficult to redistribute income to the poor without impacting the rich negatively. This reduces the non-material SOL and the government's ability to reduce income inequality.

Also, since negative growth implies less output being produced in the economy, firms cut back on production, reducing the derived demand for labour causing a rise in unemployment. Governments may have to increase spending in the form of welfare benefits to the affected.

With a fall in government revenue, and a rise in government spending, governments may experience a rise in public debt levels.



### Self-Assessment 2

Explain the various internal and external causes of negative economic growth. (Hint: The causes can be grouped as **internal** or **external** reasons)

Internal	External

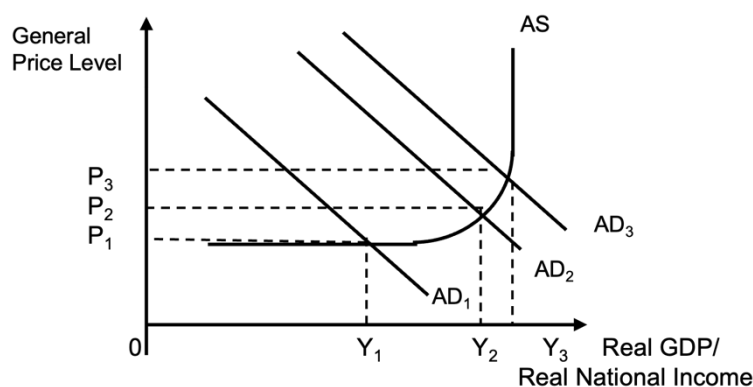
## 1.4 Slow Economic Growth

**Slow economic growth** occurs when the economy is experiencing **positive** but **low** rates of growth of between 0 to 2.5%. Since the country is still experiencing positive but low rates of growth, this is not the same as a country in recession and experiencing negative economic growth.

**Low economic growth** sometimes is referred to as **slow economic growth** or an **economic slowdown**.

### Causes of slow economic growth

Low economic growth in an economy can result from a variety of reasons, such as weak aggregate demand, or supply-side constraints such as low productivity gains.



**Figure 10: Slow Economic Growth**

### **Weak Aggregate Demand**

- There are multiple factors affecting AD in different directions. E.g. AD could be rising due to certain factors, such as an increase in C and I. However, this increase in C and I could be offset by a fall in other AD factors, e.g. fall in (X-M). Therefore, the overall increase in AD and NY is limited, causing slow economic growth.

### **Supply-side constraints**

- **SRAS:** There may be multiple factors affecting cost of production and SRAS in different directions. E.g: A fall in oil prices leading to a rise in SRAS might be offset by rising labour costs. Overall increase in SRAS and NY will be smaller, causing slow economic growth
- **LRAS:** There are multiple factors affecting productive capacity and LRAS in different directions. E.g: A rise in labour productivity could be offset by a fall in labour force size, resulting in smaller increase in LRAS and slow economic growth.

**Note:** Slow economic growth could also be a result of AD and AS shifting in opposite directions. E.g. increase in AS + fall in AD or fall in AS + rise in AS.

**Can you try to draw the diagrams to show slowing growth as a result of AD and AS shifting in different directions?**

### **Consequences of slow economic growth**

Low economic growth has undesirable effects on the economy. For example, due to low economic growth, **economic outlook** is likely to be poor, and this deters consumption and investment. In times of low economic growth, consumer and investor confidence is low. The level of consumer/investor confidence will be an important factor that determines the willingness of consumers/firms to spend/invest, borrow and save.

Low economic growth may also imply slower rate of job creation especially when AD rises slower than the expansion of the LRAS. The amount of new jobs created is less than the number of new entrants into the labour force, unemployment will rise. Most of these new entrants are likely to be young people who have just finished their education.

Government revenues are also likely to stagnate, which dampens public investment in infrastructure and human capital development. As a result, both aggregate demand and supply grow more slowly. The economy gets caught in a cycle of low economic growth.

## 1.5 Benefits and Costs of Economic Growth

There are both benefits and costs to experiencing economic growth, which will be elaborated in 1.7.1 and 1.7.2.

On the benefit-side, economic growth can lead to a higher standard of living, both in the short- and long-term. This is especially so if the high rate of economic growth is sustainable and inclusive. There are also other benefits of economic growth, elaborated in Section 1.7.1 below.

On the cost-side, economic growth can be **unsustainable or non-inclusive**. If economic growth rates are high, but is unsustainable or non-inclusive, it will also be deemed by the government as undesirable. There are also other costs of economic growth, elaborated in Section 1.7.2 below.

### 1.5.1 Benefits of Economic Growth

#### a) Improvement in Standard of Living

With economic growth, more goods and services are produced, **assuming economic growth exceeds population growth**, it will lead to a higher real income per capita. Thus, consumers can now consume more goods and services. This means that on average, the material SOL of each individual rises because a higher income enables him to buy and consume more goods and services such as more consumer durables and better health care. Economic growth thus increases *material* standard of living.

Economic growth that results from higher productivity enables people to have more time for leisure, increasing *non-material* standard of living.

Economic growth may also provide government with higher tax revenue which can be used by the government in improving quality of education and healthcare. It could also be used to provide better quality street lighting and enhance police force, improving safety and security for the people. These may result in an improvement in the *non-material* standard of living.

#### b) Increased Levels of Savings

Consumers will not spend all their increased incomes but will choose to save a part of it, thus increasing savings. Hence, more funds are available to finance both private and public investments, which results in faster capital accumulation. This raises the country's future productive capacity i.e. potential economic growth.

#### c) Increased Levels of Investments

A period of economic growth creates a positive economic outlook. Hence, firms will therefore be stimulated to increase investments to increase the economy's productive capacity to increase output. This leads to firms being able to produce more goods, ultimately improving the material well-being of the country.

#### d) Increased Levels of Employment

This depends on the level of employment an economy originally is at and the type of economic growth achieved.

If the economy is not at full employment, i.e. there is spare capacity

If the economy is not at full employment, actual growth due to an increase in AD will result in the increased utilization of unemployed resources and lead to an increase in employment and national income.

If economy is at full employment level

However, if the economy is already operating at full employment level, any economic growth must come from increases in investment on capital goods and R&D, i.e. potential growth. These increases will result in improvement to technological level and capital stock accumulation, allowing productive capacity to expand. Therefore, LRAS will rise, furthering economic growth. This would lead to more job opportunities and thus higher levels of employment.

**e) Easier to Re-distribute Income**

If there is no economic growth, and hence no change in incomes for the population, redistribution of income is only possible if someone else's income is reduced.

However, if there is economic growth, it is **possible** to redistribute some of the **increase** in income from the higher income group to the lower income groups. This reduces income inequality without having to lower anyone's income.

For example, as people's income rise, they automatically pay more personal income taxes. This extra tax revenue for the government can be spent on programmes for the poorer groups. Hence, it is easier to redistribute a growing income than a fixed one. Doing so will achieve **inclusive economic growth**<sup>1</sup>.

**f) Provide Funds for Reducing Environmental Costs of Growth**

Economic growth provides the income for cleaning up the present environmental problems caused by past growth.

It makes it possible to search for safer and cleaner methods of production. Safer and cleaner methods, as well as cleaning up environmental problems, are generally costly and poorer countries may not be able to afford such activities. Economic growth provides the monetary ability. Doing so while concurrently achieving sustained economic growth will contribute towards achieving **sustainable economic growth**.

*Note: Sustained economic growth  $\neq$  sustainable economic growth. Sustained economic growth is a **subset** of sustainable economic growth.*

**g) Help Avoid Other Macroeconomic Problems**

If the economy is at full employment, continual increases in AD without an increase in LRAS can lead to demand-pull inflation. High inflation rates may increase the country's cost of living leading to a possible fall in standard of living if wage increments are not on par.

High economic growth would increase the tax revenue collected by the government in the form of direct and indirect taxes. This could be channelled to increasing public investments that would increase in potential economic growth may help to reduce inflationary pressures, thus reducing demand-pull inflation, increasing the country's standard of living.

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<sup>1</sup> On the other hand, economic growth does not always lead to greater income equality. Refer to reference point k in 1.4.2.



### **h) Improvement in the country's budget balance**

High economic growth results in higher incomes for individuals and higher profits for firms. This results in governments being able to earn more revenue from personal income and corporate taxes. In addition, with higher levels of income, households will spend more on goods and services, resulting in higher revenues for the government from indirect taxes such as Goods and Services Tax (GST). In addition, when the economy grows at a faster rate, this tends to lower spending on social safety net programs (since fewer people need these programs when the economy is doing well). Therefore, faster GDP growth reduces the budget deficit, even with no change in underlying economic policies.

## **1.5.2 Costs of Economic Growth**

### **i) Externalities and effect on SOL**

Economic growth implies a rise in economic activities, such as production and consumption. Such activities may generate negative externalities.

Rising incomes attributing from economic growth make it possible for more people to own cars, but with more cars on the roads, there are more problems of pollution and traffic congestion. For example, major cities like Beijing, Singapore, Los Angeles suffer from this issue of huge car ownership.

Huge modern steel plants, chemical plants, oil refineries, and power generating stations may impose costs on third parties in the society such as through the uncontrolled emissions of toxic wastes. For example, power generating stations that burn fossil fuels emit carbon dioxide as well as other harmful gases, which affect residents who live nearby (third parties).

All these would worsen health and life expectancy, resulting in a fall in HDI. Ultimately, this compromises quality of life and thereby reduces non-material SOL.

### **j) Depletion of Non-renewable Resources**

As mentioned in the previous point, economic growth implies a rise in production.

Raw materials need to be extracted from the land in the production of goods. If we extract resources faster than its rate of replenishment, then the use of that resource is unsustainable. This leaves less or none for future generations. The extraction of oil is a good example – the discovery of new oil fields is becoming increasingly rare and costly.

Land and natural vegetation are also sacrificed to make way for economic growth, resulting in the extinction of different species of plant and animal life. For example, the Amazon rainforest is being cleared for the sake of economic growth. Some flora and fauna may hold medicinal value, which has yet to be discovered. Future generations will lose such valuable resources.

In addition, the depletion of resources to satisfy current wants is likely to result in less resources available to future generations. This would result in a fall in productive capacity of the country and lower potential economic growth in the future. Thus, there is a trade-off between current economic growth and future growth.

### **k) Debt-driven Economic Growth**

Economic growth may be achieved at the expense of growing debt. High economic growth rates could mean a significant rise in debt, causing the growth to be unsustainable. Increase in government spending to increase AD and NY may be driven by government borrowing and racking up large public debt that is unsustainable in the long run. To avoid a government default, i.e. government not servicing the public debt, the government may need to cut back its spending or raise taxes in future hence affecting AD and economic growth **in future**.

For example, China's recent increasing debt (increasing to two to three times GDP growth) has sparked worries in many that the debt-fuelled economic growth is unsustainable if China does not effectively tackle its serious debt problem.

*Note that: These costs of economic growth **result in unsustainable rates of economic growth**.*

### **l) Effects on the Distribution of Income**

*Sometimes economic growth may increase standard of living of one group at the expense of the other. Without any policies for redistribution, this will result in **economic growth that is not inclusive**.*

While some people may gain from a higher standard of living due to economic growth, others may stand to lose. If the means to higher growth were from policies such as interest rates cuts or corporate income tax cuts, then the rich might get richer with little benefits for the poor.

Growth may involve changes in production, both in terms of goods produced and in terms of the techniques used and the skills required. Rapid economic growth may lead to rapid changes in the demand for different labour skill sets. For example, rapid technological advancements and rise in the use of automation in Singapore to promote sustained economic growth may have caused low-skilled workers to lose their jobs. People may find that their skills are no longer relevant, thus find themselves unemployed or forced to take low paid unskilled work, leading to the distribution of income within a country to become increasingly unequal.

Such economic growth that is inequitably distributed increases crime rates, decreases health and education of the impoverished members of the society and increases political instability. As a result, it is also often argued that high levels of income inequality can stifle (long term) growth.

### **m) Rise in structural unemployment that may lower material and non-material standard of living**

Technological progress can lead to new production methods, which leave labour redundant, or in need of new skills. Labour will have to quickly adapt to learn new skills, adopt new methods of working, and accept more frequent changes of occupation, which can cause much upset and misery to the individual affected.

The inability to adapt will result in permanent loss of income. The affected workers may face long term unemployment. (This is also known as ***structural unemployment***. More will be covered in subsequent topic of Unemployment). The loss in income may result in a decline in the material standard of living as the unemployed will be able to enjoy less goods and services.

In addition, a rise in unemployment rates may lead to an increase in the overall crime rates of the country, resulting in a drop in the safety levels of the residents.

It may also lead to higher stress levels as the unemployed are jobless and need to look for new jobs. All these contribute to a fall in the non-material aspect of the standard of living.

#### **n) Opportunity Cost of Growth – Reduced Current Consumption**

A country can choose to produce consumption goods or capital goods. To achieve long-term growth, firms must invest to increase its capital stock. Investment in R&D and capital goods diverts resources away from producing consumption goods to capital goods. This results in a decrease in current consumption in the current time period. For example, Singapore can choose to use the land for factories to produce hard disks for computers or to set up R&D facilities to find better ways of producing hard disks. If she chooses the latter, she produces less hard disk (consumption goods) but more R&D (capital goods). In the short run, she will have less consumption goods (leading to reduced current consumption), but in the long run, she can produce more consumption goods.

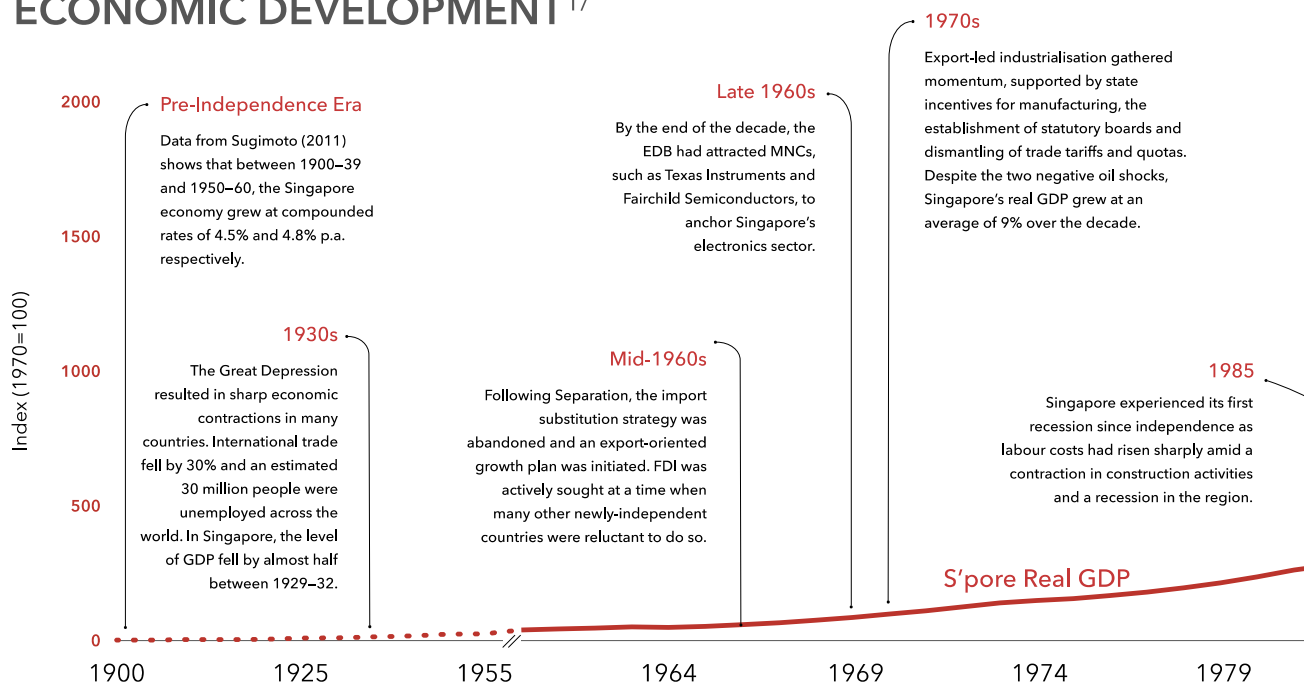
#### **n) Higher rates of demand pull inflation**

Actual economic growth without potential growth in a situation where the economy is very close to or at full employment may give rise to the build-up of inflationary pressures. If the economy is at full employment and AD continues to rise due to actual growth while AS is constant, there will be inflation (demand-pull) with no change in employment levels. In this case, economic growth is not sustained.

## 1.6 Singapore's Economic Development Over the Years

### SPECIAL FEATURE A:

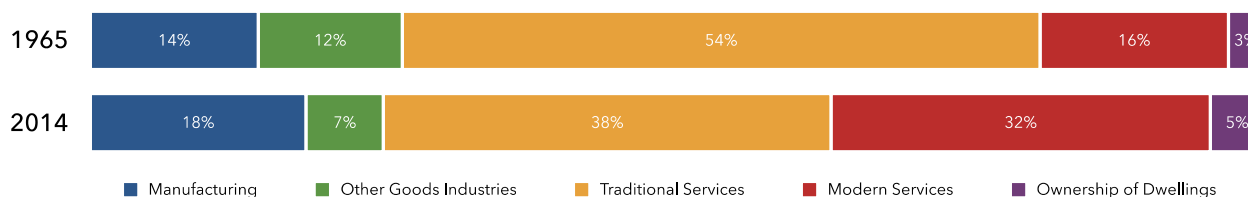
### A HISTORICAL SNAPSHOT OF SINGAPORE'S ECONOMIC DEVELOPMENT<sup>1/</sup>



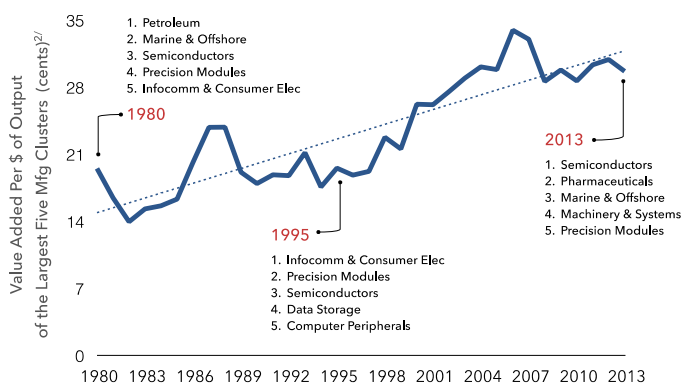
## 50 YEARS OF ECONOMIC PROGRESS

### Economic Structure (Share of Nominal GDP)

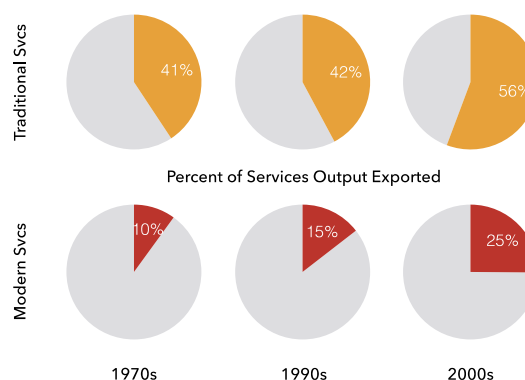
The domestic economy has evolved into a high-end manufacturing and modern services hub.



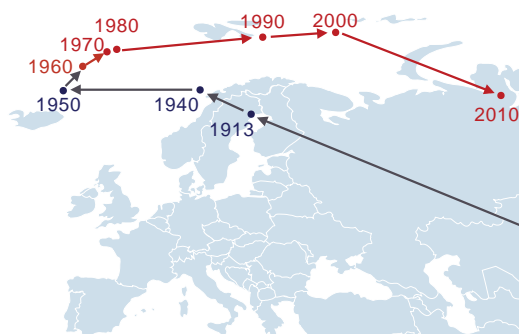
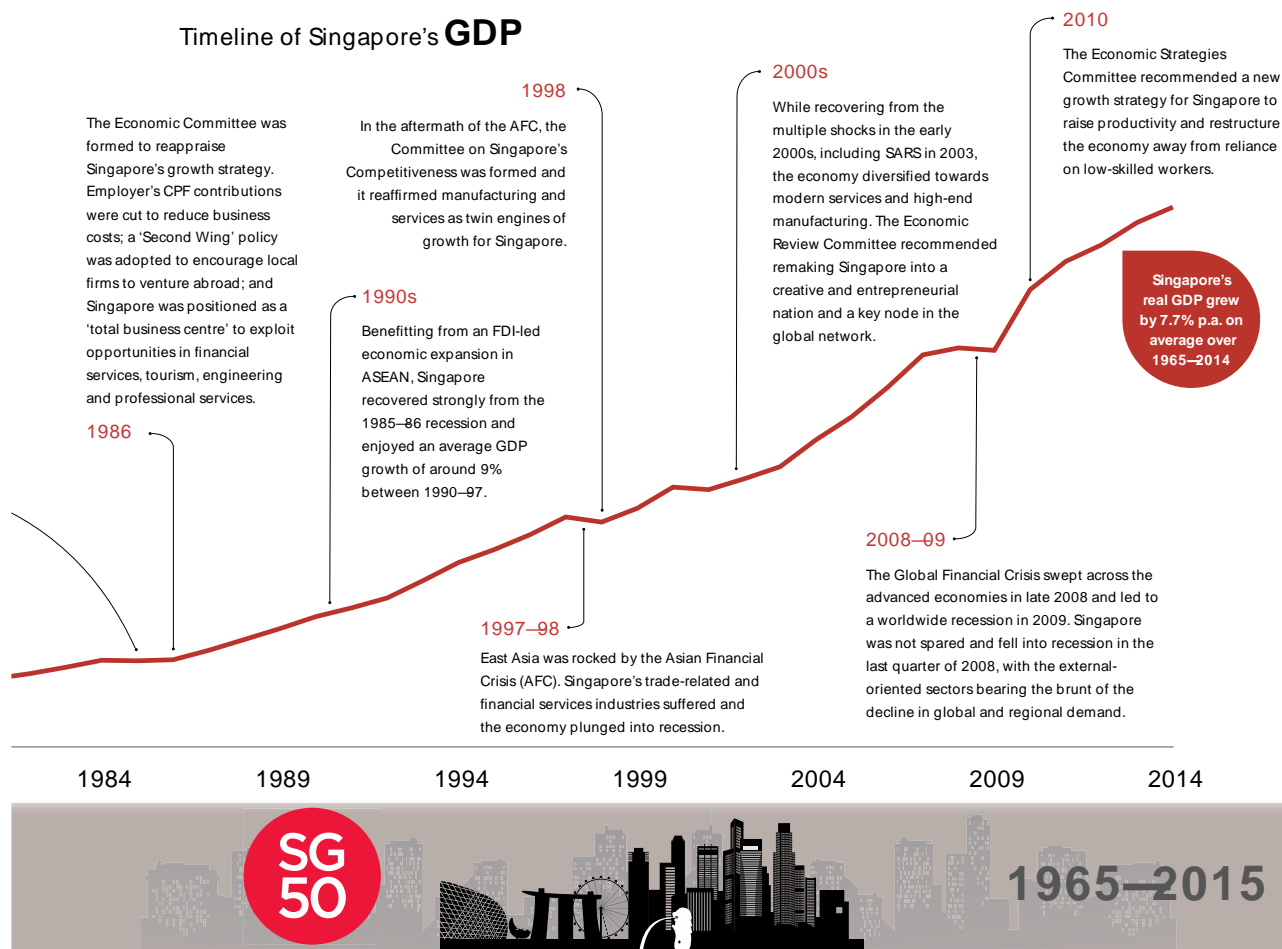
The manufacturing sector has constantly moved up the value chain ...



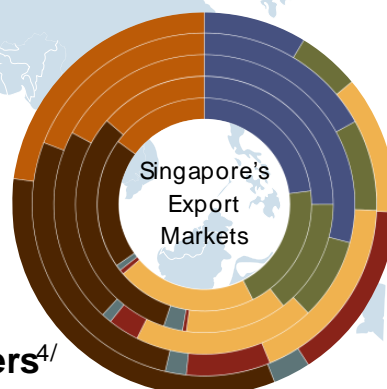
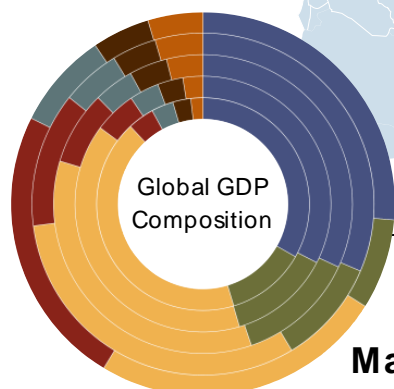
... while services have become more exportable.



## Timeline of Singapore's GDP



Over the past 50 years, the world's economic centre of gravity<sup>3/</sup> has shifted eastwards. Spurred by China's WTO ascension in 2001 and its rise as a global manufacturing base, extensive regional cross-border production networks have emerged. Accordingly, the sources of Singapore's external demand have changed, with the economic weights of its key trading partners altering significantly.



## Main Trading Partners<sup>4/</sup>

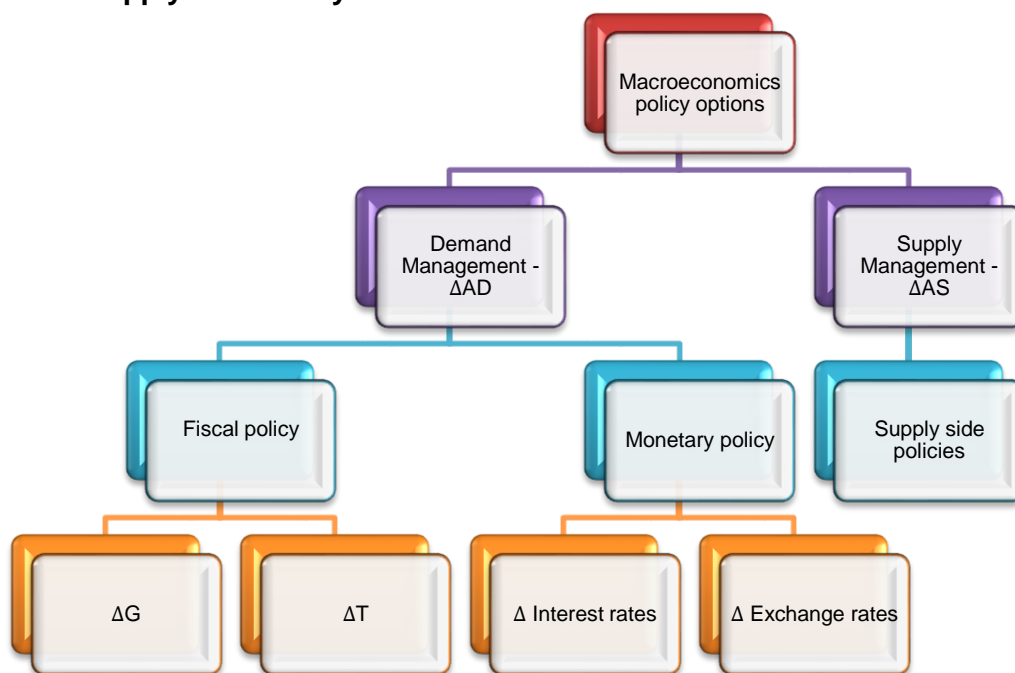
United States Japan Europe China India ASEAN-4 NEA-3

## 2. MACROECONOMIC POLICIES TO ACHIEVE ECONOMIC GROWTH

This segment serves to explain the various policy options that the government can carry out to resolve the ***undesirable rates of economic growth – low/negative, and/or growth that is unsustainable and/or not inclusive.***

These policies can be divided into four main categories:

- **Fiscal Policy**
- **Monetary Policy (Interest rate)**
- **Monetary Policy (Exchange rate)**
- **Supply Side Policy**



They can also be generally categorized into demand management and supply management policies. Demand management policies attempt to affect the aggregate demand to reach the macroeconomic objectives while supply management policies attempt to affect the aggregate supply. Fiscal and monetary policies are generally considered to be demand side policies although they may sometimes result in supply side effects as well.

For each of the policies, you have got to learn:

- 1) **Mechanism-** Economic analysis (with diagram) on how the policy solves the problem/achieves the aims (You can use the A.S.A.P. framework as a guide)
- 2) **Evaluation of policy- Advantages and Disadvantages of the policy-** Examination questions will require you to evaluate policies, so you are expected to know some strengths and limitations of each macroeconomic policy. This is summarised for you via the SUNART acronym.

### 2.1 FISCAL POLICY

Definition: **Fiscal policy** refers to the use of **government expenditure** (G) and **taxation** (T) to influence the level of economic activity in an economy. It is mainly a demand management policy to attain the various macroeconomic aims.

The two main tools of fiscal policy are: **government expenditure (G)** and **taxation (T)**. Taxes influence the economy by determining how much money the government has to spend (through government revenue) in certain areas and how much money individuals have to spend for consumption.

Demand management occurs when the government attempts to influence the level and growth of aggregate demand (AD) and hence the levels of national income, employment, rate of inflation and economic growth.<sup>2</sup>

Expansionary demand management policies seek to increase AD while contractionary demand management policies decrease AD. Fiscal and monetary policies are the main instruments of demand management policies.

## 2.1.1 TOOLS OF FISCAL POLICY

### 2.1.1.1 GOVERNMENT REVENUE

There are various ways which the government raises its revenue. These include:

- Taxes: Taxes are the major source of government revenue. They are compulsory transfers of money from households and foreigners (e.g. personal income tax) and firms (e.g. corporate tax).
- Non-tax revenue: From the sale of goods and services (from state-owned industries), fees and charges (e.g. license fees, fines) and investment income from government properties, interest payments on loans and dividends.
- Borrowings
- Foreign aid or grants

In Singapore, taxes are the most significant component of government's revenue.

#### **Purpose of Taxation**

There are two main types of taxes: Direct and Indirect.

- Direct taxes are paid by the taxpayer *directly* to the government. Income, property and corporate taxes are examples of direct taxes.
- Indirect taxes are taxes paid by the taxpayer *indirectly* (through a third party, normally the producer) to the government. GST is an example of indirect taxes.

*\*\*\* Important Note: When we consider the impact of taxes on AD, we only consider the impact of direct taxes such as personal income tax and corporate income tax. Imposition of indirect taxes, such as GST, will impact SRAS.\*\*\**

There are many purposes of taxation. These include:

#### **a) To Raise Revenue for the Government to Finance its Expenditure**

Government's expenditure includes provision of public goods e.g. national defence, subsidizing of merit goods such as health and education.

#### **b) To Achieve Macroeconomic Objectives (Economic Growth) (It can be used to achieve other goals and it will be covered in other section.**

Governments use tax policies to achieve its macroeconomic objectives. These could be in the form of:

- Redistributing Income and Wealth in order to Ensure Inclusive Growth

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<sup>2</sup> Demand management can also be used by the government to influence the country's balance of payments position which is in H2 Economics but not in H1 Economics.

A progressive income tax system can reduce inequalities of income. Additionally, taxes provide an important source of revenue to fund social protection programmes. These programmes, which usually involve transfer payments (welfare benefits), can be targeted at certain income or age groups to adequately reach those who are most in need. For example, supernormal profits arising from excessive market power may be taxed away, providing funds for programmes targeted at low-income households or the elderly.

## Systems of Taxation

The type of taxation depends on how the average rate of tax varies as incomes rise. There are three possible relationships between tax payments and a person's income. They are:

- Progressive taxes;
- Proportional taxes; and
- Regressive taxes.

### a) Progressive Taxation (focus on this and how it could address income inequality)

A progressive tax is one, which removes a greater proportion of one's income as income rises. In Singapore, an example of a progressive tax is the personal income tax. As income increases, the rate of taxation increases. The income tax rates in Singapore range from 2% to 22% as shown in the table below.

In general, a progressive tax system promotes greater equity as it takes a greater proportion of income from the rich compared to the poor. This helps in lowering income inequality achieving a more inclusive growth.

#### From YA 2017 onwards<sup>new</sup>:

Chargeable Income		Rate (%)	Gross Tax Payable (\$)
On the first	20,000	0	0
On the next	10,000	2	200
On the first	30,000	-	200
On the next	10,000	3.50	350
On the first	40,000	-	550
On the next	40,000	7	2,800
On the first	80,000	-	3,350
On the next	40,000	11.5	4,600
On the first	120,000	-	7,950
On the next	40,000	15	6,000
On the first	160,000	-	13,950
On the next	40,000	18	7,200
On the first	200,000	-	21,150
On the next	40,000	19	7,600
On the first	240,000	-	28,750
On the next	40,000	19.5	7,800
On the first	280,000	-	36,550
On the next	40,000	20	8,000
On the first	320,000	-	44,550
In excess of	320,000	22	

Source: IRAS



### Food for Thought

There was a revision of the Singapore tax rates in 2017. How has the revision affected the distribution of income?



## b) Proportional Taxation

A proportional tax is one, which removes an equal proportion of one's income as income rises. Corporate tax in Singapore is proportional at 17% (2014 Budget) on profit, regardless of level of profit earned.

## c) Regressive Taxation

A regressive tax is one, which removes a smaller proportion of income as incomes rise. Such a tax places a heavier burden on the poor.

The Goods and Services Tax (7%) is an example. Regardless of income, the consumer pays the same tax amount (7% of the selling price) as tax. As the poor also spend a greater proportion of their income on goods and services, the tax they pay will constitute a larger percentage of their income.



### Video 1: GST in Singapore

Weblink: <https://www.youtube.com/watch?v=cwHjNzXuYns&gl=SG&hl=en-GB>

Synopsis: GST in Singapore, its redistributive effects and whether GST should be lowered to help the poor?



## 2.1.1.2 GOVERNMENT EXPENDITURE

### Purpose of Government Expenditure

Macroeconomic Reasons:

- To regulate Aggregate Demand (AD) to achieve the various macroeconomic aims
- To foster potential growth by expanding the nation's productive capacity (influencing AS)
- To redistribute income to reduce income inequality/promote inclusive growth

Microeconomic Reasons (To correct market failure and redistribute resources):

- Expenditure on public goods
- Expenditure to provide or subsidise merit goods
- To redistribute income to achieve higher equity and efficiency

Generally, government expenditure ranges from defence and internal law and order to social and economic expenditure in areas such as education, health care, retirement pensions, and subsidies to agriculture and development assistance in high unemployment regions.

Forms of government expenditure include:

- Exhaustive expenditure which are payments in return for goods and services (included as part of aggregate demand in the form of G)
- Current or ordinary expenditure (i.e. expenditure in the day-to-day workings of the government) and development expenditure (i.e. spending on public investment),
- Transfer payments, which are payments, made where no current factor service is rendered.

### 2.1.2 Budget Positions

A government budget is an estimate of government revenue and expenditure for the coming fiscal/financial year. The budget position refers to the various situations below:

- A government budget **surplus** occurs when the operating revenue is **greater** than the total expenditure for the year.
- A government budget **deficit** occurs when the operating revenue is **less than** the total expenditure for the year.
- A government budget is **balanced** when the operating revenue **equals** the total expenditure for the year.
- Government decisions are dependent on a government's **beliefs and values**, e.g. fiscal prudence, and the **state of the economy**.
- Government decisions to allocate resources to various national needs incur **opportunity costs** and have an impact on the economy in the **short and long term**.

Hence, the types of budget can also indicate the types of discretionary fiscal policy a government can conduct. This will be explained next.

**Note:** Students tend to confuse 'budget deficit' with 'poor fiscal health'.

When we refer to a 'budget deficit', we mean that the government is planning to spend more than it would receive in revenue **for the fiscal year**. However, this may not necessarily affect the long-term fiscal health of the government.

E.g. the Singapore government usually runs budget surpluses and managed to accumulate ample national reserves. Therefore, in years where there is a need to run budget deficits, e.g. in 2020 to support households and firms due to economic crisis brought about by Covid-19, the government is able to draw from its reserves without affecting its fiscal health.

Additionally, **austerity measures** refers to strict economic policies that a government imposes **to control growing public debt**, defined by increased frugality. Broadly speaking, there are three primary types of austerity measures:

- revenue generation (higher taxes) to fund spending;
- raising taxes while cutting nonessential government functions; and
- lowering taxes and lower government spending.

With the reduction of public debt, the government aims to increase investor confidence and thus boost the level of investments in a country.



#### Video 2: Planning for the future with the Singapore Budget

Weblink: <https://www.youtube.com/watch?v=wQFP6O1yjm>

Synopsis: What are our considerations when planning for our future?  
Why is fiscal sustainability important? Watch this video to find out more.



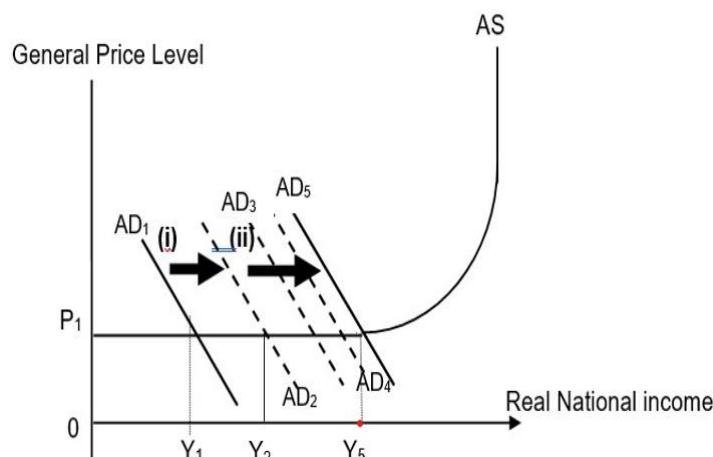
### 2.1.3 Discretionary Fiscal Policy

Governments may choose to use **expansionary fiscal policy** in times of recession or a general downturn in economic activity due to demand deficiency and to counter low economic growth and rising unemployment. This can be done by reducing direct taxes and/or rising government expenditure.

Governments may choose to use **contractionary fiscal policy** in times of inflation<sup>3</sup>. This can be done by raising direct taxes or reducing expenditure. This will be explained in future topics.

### 2.1.4 Use of Fiscal Policy to Achieve Sustainable & Inclusive Economic Growth

#### 1) Mechanism



**Figure 11: Expansionary Policy to achieve Actual Growth**

Acronym	Steps	Description
A	<b>1. AD/AS Factor and Component</b>	<p>The government increases <math>G</math> (which directly increases <math>AD</math>) and reduces <math>T</math>.</p> <p>The reduction in income tax increases disposable income, which then results in a rise in consumers' purchasing power, this increases <math>C</math>. Any reduction in corporate tax increases post-tax profits and therefore increases <math>I</math>.</p>
S	<b>2. SHIFT of AD/AS</b>	This results in $AD$ increasing, ceteris paribus. Thus, $AD$ shifts from $AD_1$ to $AD_2$ .
A	<b>3. ADJUSTMENT process</b>	Assuming the economy is not at full capacity, firms will employ more factors of production to increase production of output, which increases $RNY$ from $Y_1$ to $Y_2$ . This causes an increase in national income, which will increase income induced consumption and result in a further increase in $AD$ .

<sup>3</sup> It may also help to correct a balance of trade deficit which is not required for H1 Economics.

		<p>This triggers successive rounds of increases in national income and income induced consumption. At each round, the increase in both gets smaller. The multiplier process will end when the increase in national income is too small to generate further increase in induced consumption.</p> <p>Thus, the autonomous increase in AD from AD1 to AD2 results in a multiplied increase in RNY from Y1 to Y5</p>
<b>P</b>	<b>4. END POINT</b>	Thus, Actual Economic Growth is achieved.

*Caution: The use of **indirect** taxes, as opposed to direct taxes, will **not** affect AD as it affects cost of production and therefore SRAS (affects producers directly, paid for by taxpayers indirectly).*

#### ▪ Tax Policy to promote inclusivity and sustainability

To reduce income inequality and promote **inclusive** growth, the government may make the **tax system more progressive** by reducing indirect taxes and increasing personal income taxes for higher income brackets.

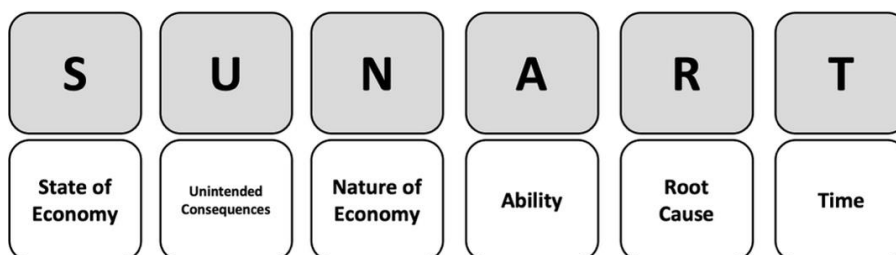
Alternative, governments may choose to target specific sectors or goods. E.g. by placing taxes on property transactions (stamp duties). This will help to promote inclusivity by reducing the profits property owners (usually the higher income group) earned from reselling.

Governments could also tax on negative externalities e.g. taxes on carbon emissions to ensure that economic growth is **sustainable** in the long run.

#### ▪ Fiscal Transfers/ Transfer Payments

The government may play an active role in ensuring the benefits of growth are shared by majority of the population through the use of transfer payments. For instance, in Singapore, the Workfare Income Supplement (WIS) supplements the income of the bottom 20% of workers through case payments and CPF contributions. This serves to increase the real income of the bottom 20% and **reduce the income gap** between the lower 20% with the rest of the employed workforce. **This helps to ensure that economic growth is inclusive** by ensuring a more even distribution of income across the economy.

## 2) Evaluation of Policy



The SUNART framework aims to identify some key points for you to evaluate the macroeconomic policies. Different elements of the SUNART framework will hold different degree of importance for various policies. Thus, we will not be going through each part of the framework.

Note: In the examination, there is no need to explain all the limitations. We will discuss more about policy evaluation in your tutorial session.

<b>State of Economy</b>	<p><b><u>Consumer and Investor Confidence</u></b></p> <ul style="list-style-type: none"> <li>▪ If consumers are uncertain about future economic outlook and future income, they are unlikely to increase their spending despite tax cuts. They will instead increase precautionary savings.</li> <li>▪ Businesses may also not increase their investments despite tax cuts if there is economic pessimism and poor expectations of future profitability.</li> </ul>
<b>Nature of Economy</b>	<p><b><u>Size of Multiplier</u></b></p> <ul style="list-style-type: none"> <li>▪ Fiscal policy, like all other demand management policies that address AD – works to increase RNY, and achieve economic growth through the multiplier effect. Hence, fiscal policy will be more effective for a country with a larger multiplier (K) and less effective for a country with a smaller K.</li> <li>▪ Singapore has a significantly smaller multiplier as compared to the US due to a significantly smaller marginal propensity to consume (MPCd). This is due to Singapore's high marginal propensity to import (MPM) and marginal propensity to save (MPS). This means that to achieve the same increase in RNY, the Singapore government has to increase its G and reduce its T by a greater extent relative to the US government. Thus, fiscal policy in Singapore would be less effective relative to the fiscal policy in the US if both governments tried to inject the same amount of expenditure into the economy to promote economic growth.</li> </ul>
<b>Unintended Consequences</b>	<p><b><u>Crowding Out Effect</u></b></p> <ul style="list-style-type: none"> <li>▪ <b><i>Crowding-out effect</i></b> occurs when an increase in government spending due to an expansionary fiscal policy reduces other types of spending such as investment spending by firms and consumer spending so that overall AD does not increase at all (full crowding-out effect) or increase to a small extent (partial crowding-out effect). Discretionary fiscal policy therefore, becomes less effective at stimulating economic growth and at reducing unemployment.</li> <li>▪ Assuming the government finances its spending by borrowing from the private sector, it essentially competes with firms/households for a fixed pool of loanable funds. As such, the demand of loanable funds increases, driving interest rates up. The higher cost of borrowing reduces borrowing by firms/households leading to reduced investment spending and consumer spending respectively which will partially offset the increase in AD due to the higher G.</li> </ul>

<b>Ability</b>	<p><b><u>Accumulated Debt</u></b></p> <ul style="list-style-type: none"> <li>Fiscal policy is less effective for country that has a high accumulated debt. They may not be able to increase G or decrease T extensively</li> </ul> <p><b><u>Inflexibility of government expenditure</u></b></p> <ul style="list-style-type: none"> <li>The government has multiple priorities and may divert its resources to fund many competing priorities. Thus, it may not be feasible to divert resources from other areas to increase G.</li> </ul>
<b>Time</b>	<p><b><u>Time lags</u></b></p> <ul style="list-style-type: none"> <li>Time lags may occur in the form of: <ul style="list-style-type: none"> <li><b><u>Recognition lag</u></b>: Identification of the problem by the government and the collection of reliable statistics may take time. On top of this, governments sometimes have to work with limited information because aggregating information on the whole economy is a mammoth task.</li> <li><b><u>Implementation lag</u></b>: This is especially so in a democratic system whereby any changes in the budget needs to go through the congress/parliament and debated on, before it can be implemented.</li> <li><b><u>Impact lag</u></b>: The time needed for the full impact of the fiscal policy to work through the entire economy through the multiplier process may not be instantaneous.</li> <li>Between these time periods, circumstances in the economy could change (e.g. demand for exports surge). With AD now rising due to two sources, higher G and higher X, the economy might suffer from inflation. Thus, because of its time lags, expansionary fiscal policy could destabilise the economy rather than stabilise it.</li> </ul> </li> </ul>

## OVERALL EFFECTIVENESS OF FISCAL POLICY IN ACHIEVING SUSTAINED, SUSTAINABLE & INCLUSIVE ECONOMIC GROWTH

### **SUSTAINED ECONOMIC GROWTH (AG+PG) AND FISCAL POLICY**

#### **(i) Actual Growth**

An increase in discretionary fiscal spending in the form of government expenditure on capital goods and services, such as infrastructure, raises aggregate demand as G is a component of AD. This results in a multiplied increase in AD, a multiplied increase in RNY and leads to an increase in **actual growth**.

In addition, an increase in the quantity of capital goods such as roads increases businesses' productivity in making deliveries and lowers their costs of production. This increases producers' profits and motivates producers to increase production. SRAS increases and shift downwards. This increases the real national income and further adds to **actual growth**.

### **(ii) Potential Growth**

At the same time, the increase in productivity explained earlier means that the same amount of resources can now be used to produce more output. This increases the productive capacity of the economy and shifts the LRAS to the right. This is an example of ***Fiscal Policy with supply-side intent*** and results in **potential growth**.

## **SUSTAINABLE ECONOMIC GROWTH (CASE OF SINGAPORE)**

The Singapore government may spend on research and development to develop areas such as green energy to ensure a cleaner and more sustainable environment.

For example, Singapore has started the SolarNova programme in 2008, which aims to work with private firms to install solar panels in HDB residential blocks and several government agencies. In the long run, such initiatives to harness clean energy lead to **sustainable growth**.

## **INCLUSIVE ECONOMIC GROWTH (CASE OF SINGAPORE)**

The progressive tax system adopted by the Singapore government helps to achieve inclusive growth, as the higher income earners pay a higher marginal tax rates than the lower income earners. The tax revenue which is collected from the higher income earner can be redistributed as subsidies to make healthcare, education and housing affordable to lower income family, thereby improving equity.

In addition, with the Skills Future initiative, it helps workers to learn new skills, which raises the average quality of the labour force. As such, such initiatives actually help to create productive employment opportunities across the different sectors and hence **inclusive growth** is achieved.

### **Summary**

Fiscal policy that is heavily skewed towards increasing AD may only achieve actual economic growth that cannot be sustained.

One pre-requisite for sustainable growth is to be able to achieve sustained growth. There must be potential growth in order for growth to be sustained. Fiscal policy needs to have supply-side elements in order to be effective in achieving sustained economic growth.

The second pre-requisite for sustainable growth is to ensure that no other significant economic problems created for future generations, which may or may not be met by the government. In addition, fiscal policies such as cutting income taxes of the middle or lower income group can increase the AD, and at the same time create greater inclusiveness in economic growth.

Therefore, the effectiveness of fiscal policy in achieving sustainable and inclusive growth does depends on how the government conducts its fiscal policy to increase AD.

## 2.2 MONETARY POLICY

In the earlier segment, we have explored the use of fiscal policy. In this segment, we will discuss the other main demand management policy – monetary policy.

Definition: **Monetary policy** is defined as the process by which the central bank uses various tools such as interest rates, money supply, and exchange rate to control the economy.

### CENTRAL BANK

The Central Bank generally performs the functions of supervising the monetary system of the economy and ensures that financial institutions such as banks operate efficiently and fairly. In Singapore, the monetary authorities comprise the Monetary Authority of Singapore (MAS) and the Ministry of Finance. The role of the Central Bank is to implement appropriate monetary policies to promote growth and stability in the economy and other objectives such as full employment.

Some examples of central banks around the world: Monetary Authority of Singapore (Singapore), The Federal Reserve (US), Bank of England (UK), Bank of Japan (Japan), The People's Bank of China (China), European Central Bank (Euro zone), Bank Negara Malaysia (Malaysia).

### TOOLS OF MONETARY POLICY

Central banks use contractionary monetary policy to reduce inflation. They do this through various monetary tools, such as raising interest rates and selling securities through open market operations. They use expansionary monetary policy to lower unemployment and avoid recession.

Monetary policy looks at how money affects the economy. The main tools of monetary policy used by the Central bank are

- Money Supply/Monetary Base
- Interest Rates
- Exchange Rates

The choice of instruments is dependent on the nature of the economy. In the United States and United Kingdom, interest rate policy is the tool most often used. In a small, open economy like Singapore, the exchange rate is used.

### Money Supply/Monetary Base

This refers to the total stock of money available in an economy at a point in time. The money supply is made up of **currency in circulation** and **bank deposits**. Central banks can change the money supply by a variety of methods - conducting open market operations (buying or selling of bonds/securities), adjusting the bank's minimum reserve ratio to affect the credit creation process and adjusting lending to banks from Central banks.

For example, to **increase** money supply, the central bank can:

- Buy bonds/securities
- Lower the minimum reserve ratio to increase credit creation
- Increase lending to commercial banks



Please refer to **Appendix 1** for a brief explanation of how these methods work.

The contemporary approach to monetary policy used today in many developed countries such as the USA, Japan and EU **is to focus directly on interest rates rather than money supply**. Normally, an interest rate will be announced and then open market operations (buying and selling of bonds/securities) will be conducted by the central bank to ensure the money supply is adjusted so as to make the targeted interest rate the equilibrium rate.

The interaction of demand and supply of money determine the price of money which is interest rate. **Interest rates can also be thought as the cost of borrowing and the returns to savings**. There are many theories that seek to explain how interest rates are determined. The two key theories are the **Liquidity Preference Theory** and the **Theory of Loanable Funds**. Both theories seek to explain the determination of interest rates through demand and supply.

Please refer to **Appendix 2** for an explanation of the **Liquidity Preference Theory** and the **Loanable Funds Theory**. While the syllabus does not require students to explain these theories and Figures 1a & 1b in full, an awareness of the various factors underlying changes in interest rates as explained by these theories is useful in understanding monetary policy.

### 2.2.1 INTEREST RATE-CENTRED MONETARY POLICY

As mentioned above, one way in which a country may affect the level of economic activity is through varying the interest rate prevailing in the economy. These changes in interest rate is often carried out by increasing or decreasing the money supply in the country.

**Definition:** The interest rate centred monetary policy is a form of monetary policy where the government intervenes by manipulating the money supply and interest rate in order influence AD to achieve its economic objectives.

The governments can either do contractionary or expansionary monetary policy. An **expansionary monetary policy** also known as '**loose/cheap**' **monetary policy** is pursued when the government seeks to increase the money supply in the economy, usually used to stimulate production and to increase the level of economic activity in times of recession through **lower interest rates**.

Governments may choose to use **contractionary monetary policy** in times of inflation<sup>4</sup>. This can be done by raising interest rates and or appreciating/revaluing the country's currency. This will be explained in future topics.

### 2.2.2 Use of Monetary Policy in Achieving **Sustained Economic Growth**

Monetary Policy in itself works to **achieve sustained growth only** and need to be complemented with other policies to make this growth both sustainable and inclusive. Hence, the below will show how Monetary Policy can be used by governments to achieve sustained economic growth

#### 1) **Mechanism (For Diagrammatic reference, refer to the Fiscal Policy Section)**

Acronym	Steps	Description
A	1. AD/AS Factor and Component	Internal Effects:

<sup>4</sup> It may also help to correct a balance of trade deficit which is not required for H1 Economics.

		<p><b><u>Lower interest rates will also encourage consumption</u></b> as it directly reduces the cost of borrowing for purchases of consumer durables. Moreover, lower interest rates lead to lower returns to savings and lower opportunity cost of spending. Consumers will thus be more willing to spend. This incentivizes households to consume rather than to save, hence consumption would rise.</p> <p>Recall in the Intro to Macro Analysis, we have learnt that <b><i>a firm will only invest if the expected rate of returns on investment (MEI) is greater than the current rate of interest.</i></b> With lower interest rates, investments are likely to be more profitable (with the lowered cost of borrowing), encouraging an increase in investments.</p> <p><b>External Effects:</b> The fall in interest rates will lead to an outflow of hot money in search for higher interest rates in other countries. This will then lead to an increase in supply of the currency in the forex market. Thus, there will be a depreciation of the exchange rate. With a weaker exchange rate, exports are cheaper in foreign currency terms. This will lead to an increase in demand for our exports. Imports will be more expensive in local currency terms. This will lead to a fall in quantity demanded of the imports, thus leading to an increase in X and a fall in M. (X-M) will then increase.</p>
<b>S</b>	<b>2. SHIFT of AD/AS</b>	This results in AD increasing, ceteris paribus. Thus, AD shifts from AD1 to AD2.
<b>A</b>	<b>3. ADJUSTMENT process</b>	<p>Assuming the economy is not at full capacity, firms will employ more factors of production to increase production of output, which increases RNY from Y1 to Y2. This causes an increase in national income, which will increase income induced consumption and result in a further increase in AD.</p> <p>This triggers successive rounds of increases in national income and income induced consumption. At each round, the increase in both gets smaller. The multiplier process will end when the increase in national income is too small to generate further increase in induced consumption.</p> <p>Thus, the autonomous increase in AD from AD1 to AD2 results in a multiplied increase in RNY from Y1 to Y5</p>
<b>P</b>	<b>4. END POINT</b>	Thus, Actual Economic Growth is achieved.

## 2) Evaluation of Policy

<p><b>State of Economy</b></p>	<p><b><u>Consumer and Investor Confidence</u></b></p> <ul style="list-style-type: none"> <li>Consumption and investment are likely to be <b><u>interest insensitive</u></b> (or inelastic) during a severe economic downturn as firms and households are unlikely to borrow when the economic outlook is very poor.</li> <li>Cutting interest rates may not lead to economic growth. Expansionary monetary policy may fail if confidence is very low, and people may not want to invest or spend, despite lower interest rates.</li> <li>Where confidence levels are low and the demand for investments are interest inelastic, as shown by <math>MEI_i</math> in Figure 13, a fall in interest rates from <math>r_1</math> to <math>r_2</math> would cause investment to increase less than proportionately (<math>I_1</math> to <math>I_2</math>), limiting the effectiveness of the expansionary interest rate policy in stimulating the economy.</li> </ul> <p><b><u>Liquidity Trap</u></b></p> <ul style="list-style-type: none"> <li>Another limitation is the <b><u>liquidity trap</u></b>. At very low levels of interest rates, an increase in money supply will no longer cause the interest rates to fall further. This is because the demand for money becomes perfectly interest elastic.</li> <li>Since interest rates do not fall further, conventional monetary policy does not stimulate C and I and thus, AD. Thus, monetary policy loses its expansionary effect.</li> </ul>
<p><b>Unintended Consequences</b></p>	<p><b><u>Asset Bubbles</u></b></p> <ul style="list-style-type: none"> <li>An asset (property and shares) bubble occurs when the market price of an asset exceeds its rightful price.</li> <li>Lower interest rates reduce costs of borrowing, which boosts investment spending. Thus, investors invest in various types of assets, spiking asset prices.</li> <li>The accelerated increase in asset prices attracts many to borrow and invest. However, when the asset prices eventually fall when the bubble bursts, many then suffer huge losses and incurs high debts, leading to serious recessionary pressures and economic hardships.</li> </ul> <p><b><u>Rising asset prices and impacts on firms and consumers</u></b></p> <ul style="list-style-type: none"> <li>Rising property prices also impacts the affordability of housing and operating costs of firms which also have social and economic implications.</li> </ul>
<p><b>Nature of Economy</b></p>	<p><b><u>Multiplier Size- As per previous section</u></b></p>

## OVERALL EFFECTIVENESS OF MONETARY POLICY (INTEREST RATE) IN ACHIEVING SUSTAINED GROWTH

Overall, whether or not monetary policy is effective is heavily dependent on the country and situation. For some countries suffering from demand deficient recessions, then monetary policy is indeed the best policy whereas for other economies who may be experiencing other problems such as widening income gap between the rich and the poor (inclusive economic growth) then alternative policies are more effective. The best policy is one that suits both the country (the economic characteristics) as well as the situation (the context).

### 2.3 EXCHANGE RATE CENTRED MONETARY POLICY

The exchange rate centred monetary policy is often referred to as exchange rate policy for short.

Definition: **The exchange rate policy** is a form of monetary policy where the government intervenes by manipulating the exchange rate of its currency to achieve its macroeconomic objectives. **It is often done to promote price stability as a sound basis for sustainable economic growth.**

#### 2.3.1 Exchange Rate Determination.

##### Terminologies

- **Exchange rate** refers to the value of one currency in terms of another currency.
- **Nominal Exchange rate** of a currency is the exchange rate based on the nominal value of the currency, before making adjustment to price changes.

The exchange rate of a country's currency is the rate at which that currency is exchanged for another currency. Also known as the value of one currency in terms of another currency. It is determined by demand and supply for the currency *in the foreign exchange market*.

The foreign exchange market, like any market, is made up of demand and supply of currencies.

**The demand of a country's currency is generated from international transactions that requires buying of a country's currency.** For example, if there is a rise European tourists to Singapore, there will be more Europeans who may need to buy Singapore dollars by selling Euros. This will increase the demand for Singapore dollar.

##### Sources of demand for a currency

1. Demand for a country's exports – rise in international tourism in a country
2. Long term investments inflow – inflow of foreign direct investment (FDI) and portfolio investments into the country
3. Short term investments inflow – inflow of short-term investments due to anticipation of profits, possibly from high interest rates or anticipated exchange rate changes (this is also known as "hot money inflow")
4. Official buying of the currency by the domestic central bank

Assuming no government intervention, a rise in the demand for the currency will cause an appreciation in the currency; and a decrease in the demand for the currency will cause a depreciation in the currency, *ceteris paribus*.

**The supply of a country's currency is generated from international transactions that requires sales of a country's currency.** Going back to the previous example, looking at it from the Euro exchange rate market point of view, if there is a rise European tourists to Singapore, there will be more Europeans who may need to sell Euros to buy Singapore dollars. The sales of the Euros will result in a rise in supply of Euros.

### **Sources of supply for a currency**

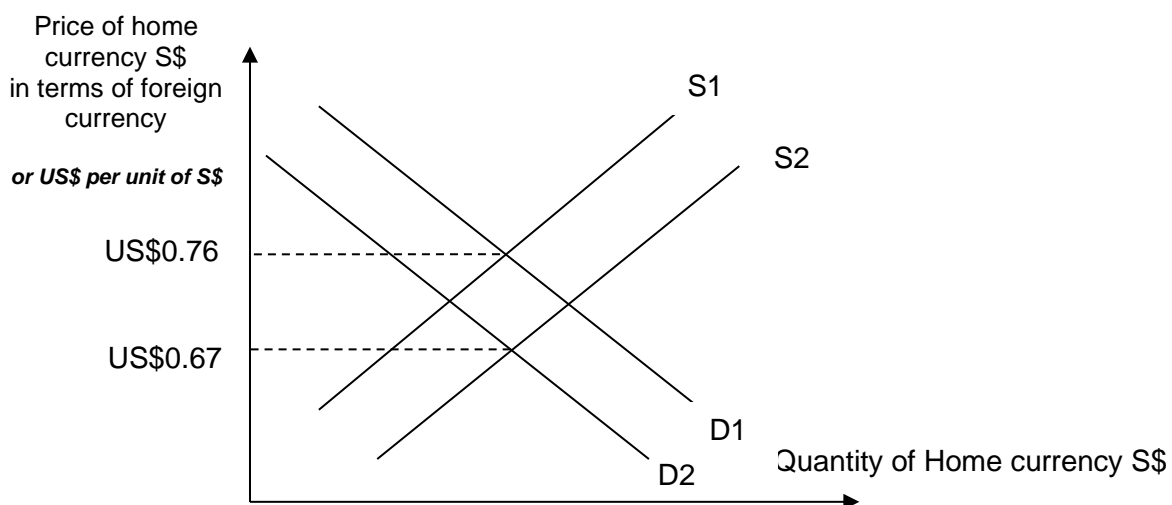
1. Demand for imports – buying products from US Amazon
2. Long term investments outflow – outflow of direct investment and portfolio investments into other countries
3. Short term investments outflow – outflow of short-term investments due to anticipation of profits overseas, possibly from high interest rates or anticipated exchange rate changes (this is also known as “hot money outflow”)
4. Official selling of the currency by domestic central bank

Assuming no government intervention, an **increase** in the supply of currency will result in a **depreciation** in the currency's value, *ceteris paribus*; and a **decrease** in the supply of currency will result in an **appreciation** in the currency's value, *ceteris paribus*.

**Sometimes both demand and supply can be simultaneously affected.** For example, a higher inflation in Singapore than in USA, a trading partner is experienced.

Singaporean goods will be more expensive in terms of US dollar, while US goods are relatively cheaper in terms of Singapore dollar. Assuming  $PED_x > 1$ , Singapore's export revenue from the USA falls. Less US dollar is now exchanged for Singapore dollar, causing a fall in demand for the Singapore dollar from D1 to D2. On the other hand, Singapore's import expenditure to US will rise. More Singapore dollar is now exchanged for US dollar, causing a rise in supply for the Singapore dollar from S1 to S2.

Let us take a look at how the value of the Singapore dollar will be affected by falling demand and rising supply of Singapore dollar in the foreign exchange market. The **horizontal axis** measures quantity of Singapore dollars, while the **vertical axis** measures price of Singapore dollar expressed in terms of another currency. As observed from Figure 12, the Singapore dollar depreciates as one unit of S\$ can now buy *less* US\$.



**Figure 12: Exchange Rate Determination for Singapore Dollar**



### **Self-Assessment 3**

Illustrate using an appropriate framework, explain what will happen to the value of the US Dollar if there is an increase in interest rates in the US.

## **Factors that affect Singapore's Exchange Rates**

In short, any factor that changes the demand and supply of currency in the foreign exchange market will impact the exchange rates. The below are factors that may possibly affect the Singapore's exchange rates.

### **(a) Changes in current account**

- **Rise in income of trading partners:** A strong demand for Singapore's goods and services could be caused by **an increase in incomes of other countries**. Foreigners may increase their ***demand for all normal goods (positive YED value), including imports from Singapore, with the largest rise in demand for luxury goods.*** With this strong demand for Singapore's goods and services, Singapore will experience a current account surplus, assuming all other factors are held constant. Hence, there will be more foreign dollars exchanging for Singapore dollars, causing a rise in demand for SGD in the foreign exchange market. There will be an appreciation, a rise in the value of Singapore dollar.
- **Large current account deficit:** Conversely, if Singapore is running a large current account deficit, it is likely that there is a net outflow of Singapore dollars. Hence, at the current exchange rate, there is likely to be excess supply of its currency in the foreign exchange market. There will be more Singapore dollars exchanging for foreign dollar. There will be a depreciation. Thus countries running current account deficits are likely to see a fall in value of Singapore dollar.
- **Relative inflation rates:** **Singapore is a small open economy which is heavily invested in trade.** If Singaporean goods will be more expensive in US currency, while US goods are relatively cheaper in Singapore dollar. Assuming  $PED_x > 1$ , Singapore's export revenue from the USA falls. Less US dollar is now exchanged for Singapore dollar, causing a fall in demand for the

Singapore dollar. On the other hand, Singapore's import expenditure to US will rise. This is because US imports and Singapore's domestic goods are substitutes ( $XED > 0$ ), a rise in price of the former will result in a fall in its quantity demanded and a rise in demand of US imports. Thus, more Singapore dollar is now exchanged for US dollar, causing a rise in supply. There will be a depreciation. In another words, there is a fall in the external value of money.

### **(b) Capital Movement**

Major capital flows (short-term or long-term) can exert strong influences on exchange rate.

#### **(i) Short-term Capital ('Hot' Money) Movement**

- **The level of interest rates:** The level of interest rates in an economy has a large influence on investment and other currency inflow accounts. Suppose that Singapore's short-term interest rate rises above the rates in most countries, this will attract large inflows of speculative or 'hot' money into Singapore from all over the world. This will result in greater demand for S\$ and its exchange rate will increase. Conversely, if the Singapore short-term interest rate is lower than elsewhere, the S\$ will depreciate.
- **Expectations of movements in exchange rates:** Expectations is a *major* determinant of exchange rates. If foreign currency speculators *expect* the country's exchange rate to fall in the future they will sell the currency now in order to avoid future losses. This will result in a greater supply of S\$ and have the effect of bringing about an immediate depreciation in the exchange rate. Conversely, if they expect the country's exchange rate to increase, they will buy the currency resulting in a greater demand for S\$ and the currency will appreciate.

Speculators' expectations may be influenced by the following key indicators:

- » Inflation expectations: For example, if the inflation rate is expected to be lower and therefore its currency is expected to appreciate, speculators move in to buy the currency.
- » Expected changes in government policy: For example, if people expect the government of a country to implement a restrictive monetary policy, they expect its interest rates to rise above interest rates of other countries. So speculators will move to buy its currency, causing it to appreciate.

#### **(ii) Long-term Capital Movement**

- Long term capital movement may include investment into foreign countries by either buying the foreign government bonds or equities of foreign companies, or by setting up businesses/factories abroad.
- The chief factor influencing such capital movements is the prospective yield or profits in Singapore, as compared to elsewhere, after taking into account of political, economic risks (such as threats to economic performance, policies as well as long run exchange rate value) and other risks.

- In short, long-term capital flows are largely influenced by long-term expectations about a country's profit opportunities and the long run value of its currency.
- Hence, if more capital moves into Singapore than out of it, the exchange rate of the SGD would strengthen. If capital outflow exceeds inflow, the exchange rate of the SGD would weaken.

#### (i) Confidence factor

- If, for any reason, political and/or socio-economic, there is a loss of confidence in the currency, then the currency will depreciate.

### 2.3.2 Exchange Rate Regimes

There are three types of Exchange Rate regimes and they function differently to manage the prevailing exchange rate of a particular currency.

<b>Free-Floating Exchange Rate Regime</b>	<b>Fixed Exchange Rate Regime</b>	<b>Managed Float Exchange Rate Regime</b>
<p>A <b>free floating exchange rate regime</b> is one whereby the exchange rate is <b>determined solely by the interaction of demand and supply of the currency in the Foreign Exchange market.</b></p> <p>When the demand for the domestic currency rises (e.g. because of greater demand for the domestic country's exports), the currency <i>appreciates</i>. When the supply of the domestic currency rises (e.g. because of greater demand for foreign goods/imports), the currency <i>depreciates</i>.</p>	<p>A <b>fixed exchange rate regime</b> is one whereby the exchange rate is <b>fixed by the central bank.</b></p> <p>Under this system, the government is committed to maintaining the fixed exchange rate by buying or selling its currency in the foreign exchange market using its reserves (foreign exchange – as recorded in the Official Reserves Account in the BOP) to exactly offset the changes in market demand and supply.</p>	<p>A <b>managed float</b> is one where the exchange rate is <b>free to float within a prescribed band</b>, but the central bank would intervene when the exchange rate exceeds the range.</p> <p>The managed float exchange rate regime is adapted by the Monetary Authority of Singapore and serves as the preferred monetary tool in Singapore.</p>



#### Video 3: Floating VS Fixed Exchange Rates



Weblink: [https://www.youtube.com/watch?v=jPL\\_5trI6YY](https://www.youtube.com/watch?v=jPL_5trI6YY)

Synopsis:

This video explores the difference between floating and fixed exchange rates and how countries peg the value of their currency to another currency.

### 2.3.3 How the Exchange Rate Policy Works

- **Devaluation/Revaluation**
  - **Devaluation** occurs if a nation operating a **fixed exchange rate reduces** the external price of its currency. For e.g. £1 = S\$2 is changed to a lower fixed parity at £1 = S\$3, we say that the Singapore dollar has devalued, since the external price of S\$1 drops from £0.5 to £0.33.
  - On the other hand, **Revaluation** would mean that the external price of its currency is increased by the central bank.



- It also applies to a country operating a **managed float exchange rate** system. If a country decides the band is too high, it can lower the band and 'devalue' the currency.
- **Depreciation/ Appreciation**
  - **Depreciation** occurs when a nation operating on a **freely floating** or **managed floating** exchange rate system allows the external value of its currency to fall due to **market forces**.
  - The opposite occurs for **appreciation**.



**Video 4:** Why do countries want a weaker currency?



Weblink: <https://www.youtube.com/watch?v=Bri7ispm4G4>

Synopsis:

The devaluation debate - why do countries want their currencies to be weak?  
Are there any limitations to it?

An **appreciation/revaluation** in the exchange rate would mean that the **price of imports in local currency is cheaper** and **price of exports in foreign currency becomes more expensive**. A **depreciation/devaluation** would mean that the price of imports becomes more expensive *in local currency* and the price of exports becomes cheaper *in foreign currency*.

*Note: Strictly speaking, devaluation and revaluation applies to **government intervention** while appreciation and depreciation applies to **free market interactions**. However, some journalists do not make these distinctions.*

Exchange rate policy can function as a demand management tool, normally through the manipulation of the net export (X-M) component of aggregate demand. This generally involves a deliberate change in the foreign exchange rate of the country to achieve certain economic objectives.

**Note this policy can only be used by countries that adopt the *fixed exchange rate* or the *managed float system* and not the *free float system*.**

#### 2.3.4 Use of Exchange Rate Policy in Achieving Sustainable and Inclusive Economic Growth

##### 1) **Mechanism- For diagrammatic reference, refer to the Fiscal Policy Section**

Acronym	Steps	Description
A	1. AD/AS Factor and Component	The devaluation will lead to exports being cheaper in foreign currency terms. This will lead to an increase in demand for our exports. Imports will be more expensive in local currency terms. This will lead to a fall in quantity demanded of the imports, thus

		leading to an increase in X and a fall in M. (X-M) will then increase.
<b>S</b>	<b>2. SHIFT of AD/AS</b>	The increase in X-M results in AD increasing, ceteris paribus. Thus, AD shifts from AD1 to AD2.
<b>A</b>	<b>3. ADJUSTMENT process</b>	<p>Assuming the economy is not at full capacity, firms will employ more factors of production to increase production of output, which increases RNY from Y1 to Y2. This causes an increase in national income, which will increase income induced consumption and result in a further increase in AD.</p> <p>This triggers successive rounds of increases in national income and income induced consumption. At each round, the increase in both gets smaller. The multiplier process will end when the increase in national income is too small to generate further increase in induced consumption.</p> <p>The autonomous increase in AD from AD1 to AD2 results in a multiplied increase in RNY from Y1 to Y5.</p>
<b>P</b>	<b>4. END POINT</b>	Thus, Actual Economic Growth is achieved.

*\*Note that exchange rate policy is unable to directly ensure that the growth is inclusive and sustainable.*

## 2) Evaluation of Policy

<b>Unintended Consequences</b>	<p><b><u>Conflict between growth and inflation</u></b></p> <ul style="list-style-type: none"> <li>Achieving economic growth via depreciation can result in <b>cost-push inflation</b> (This will be taught in greater detail in the next set of lecture notes, Inflation). <b>For countries that are dependent on imports as factor of production, such as Singapore, depreciation results in a higher price of these raw materials in domestic currency. This serves to increase firms' costs. Hence, with a higher cost of production, to maintain profits, firms will be willing to sell each level of output only at a higher GPL, thus passing on higher costs to consumers as higher prices,</b> causing a fall in SRAS (SRAS shifts upwards) and driving general prices upwards. Hence depreciation to achieve actual growth could results in cost-push inflation and conflict with the macroeconomic aim of price stability.</li> </ul>
<b>Nature of Economy</b>	<p><b><u>Small and Open Economy VS Large and Less Open Economy</u></b></p> <ul style="list-style-type: none"> <li>Exchange rate policy would be effective if the economy is small and open, as it will be highly dependent on net exports as a key driver of economic growth. This is the case for Singapore as it is a highly open economy. When</li> </ul>

	<p>an economy is trade-dependent, (X-M) would form a significant proportion of AD. Thus, exchange rate policy would have a significant impact on the economy when there is depreciation, i.e. more likely to address a recession that is caused by external factors.</p> <ul style="list-style-type: none"> <li>▪ In contrast, USA is a large and less open economy depending on domestic consumption as a key driver of growth. Its proportion of net exports relative to GDP is very small. Given a change in exchange rate, the impact of net exports and hence AD would be minimal.</li> </ul>
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<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<p><b><u>Self-Assessment 4</u></b></p> <ol style="list-style-type: none"> <li>1. How does the depreciation of the Sterling help in economic recovery of the UK?</li>   <li>2. What are some limitations of depreciating the Sterling to bring about Economic recovery?</li> </ol>
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*Note that exchange rate policy, like Fiscal and Interest rate centred Monetary policy, is usually a **demand management** policy. Hence, it is most effective at helping to sustain actual economic growth.*

## OVERALL EFFECTIVENESS OF EXCHANGE RATE POLICY IN ACHIEVING SUSTAINABLE AND INCLUSIVE ECONOMIC GROWTH

Recall that exchange rate policy largely is able to achieve sustained growth only. It needs to be complemented with other policies to make this growth sustainable and inclusive.

In terms of achieving sustained economic growth, exchange rate policies are usually more appropriate for small and open economies like Singapore and Hong Kong because as they are more exposure to external uncertainties. Therefore, for most large and less open countries, the default monetary policy tends to be interest rate policy.

### 2.3.5 SINGAPORE'S MONETARY POLICY – EXCHANGE RATE POLICY

The choice of using the exchange rate rather than other tools is mainly influenced by Singapore's **small size, high degree of openness to trade and capital flows**. The **primary objective** of monetary policy in Singapore is **to promote price stability as a sound basis for sustained economic growth**.



**MAS' goal: To ensure price stability, as a basis for sustainable economic growth.**  
When inflation is low and stable, there is less uncertainty about returns on long-term investments, and firms can plan further ahead. It also helps to ensure a competitive export industry.

**Unlike most major economies, Singapore's central bank manages the exchange rate, rather than the interest rate, and has done so since 1981.**  
A small and open economy, Singapore is highly dependent on trade. The Singapore dollar's strength relative to other currencies can thus influence prices significantly. Also, the exchange rate is relatively easy for the central bank to control – by buying and selling Singapore dollars. By choosing to manage the exchange rate, MAS gives up control over domestic interest rates. As capital flows in and out freely, interest rates are largely determined by foreign interest rates and how investors expect the Singapore dollar to move.

**The reasons for Singapore's choice of exchange rate policy over interest rate policy are:**

**a) Small Size and Openness to Trade**

- Singapore's small size and lack of natural resources means that most of our basic necessities and raw materials have to be imported. Furthermore, if we produce solely for the domestic market, our relatively smaller market would limit economic growth. These result in a very **open trade policy with few import restrictions**.
- Singapore's total trade (X+M) is about three times that of GDP. Given Singapore's small size, **it does not influence world prices and is a price taker**. Producers and consumers in Singapore have to accept prices dictated by global supply and demand conditions. As a result, the exchange rate directly affects the prices we pay.
- In addition, it is important to control exchange rates to manage the **imports prices in domestic currency, a significant factor determining price stability in Singapore**. This is because Singapore is heavily dependent on imported FOP for production and imported goods and services for consumption. Smaller domestic demand influence (as compared to external demand)
- **Small consumption expenditure and investment expenditure** on domestic goods and services relative to the domestic exports and the low interest elasticity of consumption and investment. Singapore is highly dependent on external demand with the domestic exports accounting for a large proportion of the national income. The consumption expenditure and investment expenditure on domestic goods and services are small relative to the domestic exports. Therefore, it is more effective to manage the economy by controlling export revenue and import expenditure rather than consumption and investment expenditure
- **Culture of thrift and compulsory savings** therefore a fall in interest rates in Singapore is unlikely to lead to a significant increase in consumption expenditure due to the culture of thrift, and it is unlikely to lead to a significant increase in investment expenditure as most of the investments are made by foreign firms with foreign sources of funds.
- **Importance of external demand** which constitutes about 360% of GDP also means that traditional monetary policy instruments such as money supply or interest rate, which largely affect domestic demand, have a smaller influence on the overall level of economic activity and, therefore, inflation in Singapore. Thus exchange rate policy is likely to be more effective in having a bigger influence on AD.

### b) Openness to Capital Flows as a small open economy

- Because of Singapore's role as an international financial centre, the economy is very open to capital flows. Due to the free capital mobility, the effect of hot money flows on the money supply will be substantial. As a result, small changes in the difference between domestic and foreign interest rates can lead to large and quick movements of capital in and out of the economy.
- For example, if the MAS increases money supply to lower interest rates below foreign interest rates, hot money inflows will decrease and hot money outflows will increase, which will lead to a decrease in the money supply. Hence, less money will be in circulation. Therefore, the decrease in the money supply will lead to a rise in interest rates back to the initial level, rendering the policy ineffective.
- Furthermore, attempts to target/adjust interest rates would result in the loss of control over exchange rates. For example, any attempts to raise interest rates above foreign interest rates would result in large capital inflow into Singapore, leading to a surge in demand for SGD and rising exchange rates, causing exchange rate instability. Such exchange rate instability may not be conducive for trade and foreign investments which Singapore is highly dependent on, resulting in MAS's choice of exchange rate as its preferred policy tool over interest rate.
- Hence, Singapore chooses to not influence interest rates, and instead opts to be an interest rate taker, allowing her domestic interest rates to be largely determined by foreign rates and market expectations of movements in the exchange rate of Singapore dollar (S\$). The mirroring of domestic interest rates to foreign interest rates will avoid large fluctuations in hot money, keeping the exchange rates stable.

### c) Open Economy Trilemma

- Notice in the earlier section, we have observed that the Singapore government has chosen to be open to capital flows, intervene actively in exchange rates but not in interest rates.
- While both interest rates and exchange rate policies can be used to achieve various macroeconomic objectives, the government **cannot** control interest rates through the conduct of monetary policy, manage a fixed exchange rate regime and have free capital mobility *all at the same time*. Interest Rates and Exchange Rates are alternative instruments. This is termed as the **open economy trilemma**.



### Video 5: The Open Economy Trilemma



Weblink: <https://www.youtube.com/watch?v=yt0m7N3bqXM>

Synopsis:

Why would it not be possible to have fixed exchange rate, free capital movement and maintain the independent conduct of monetary policy?



### Video 6: Why does Singapore choose to use the Exchange Rate Policy?



Weblink: <https://www.youtube.com/watch?v=JcrqTU76iAk>

Synopsis:

Why does Singapore choose to use Exchange Rate Policy as a policy instrument to stimulate the Economy?

- According to the *Open-Economy Trilemma*, an economy cannot simultaneously:
  - (i) manipulate exchange rate;
  - (ii) have free capital mobility; and
  - (iii) control interest rate.

Therefore, due to the high dependence of the Singapore economy on external demand, the Monetary Authority of Singapore (MAS) chooses to use a managed float exchange rate over interest rates that largely affects internal demand. For example, any attempts to control the interest rates would lead to large capital inflow/outflow which would destabilise the exchange rate. As a result, MAS focuses on the exchange rate rather than the interest rates

- The theory postulates that governments can only choose **one/two** of the three policies, and **not all three at any one time**. The table below shows a comparison of three countries and their choices.

<u>Singapore</u>	<u>USA</u>	<u>China</u>
Allows free flow of capital and uses managed float regime for exchange rate.	Uses domestic monetary policy (interest rates) to expand or contract the economy, while keeping its capital market open at the same time.	Maintains control over its exchange rate as well as its interest rate.
It sacrifices the use of interest rates or money supply as a tool for monetary policy, i.e. Singapore's interest rate fluctuates according to the global interest rates.	It sacrifices exchange rate management as a tool to manage its economy, i.e. US\$ is allowed to float according to demand and supply forces.	Exchange rate is used to maintain its price competitiveness of its exports (hence maintaining a BOP surplus) while interest rate is used as a tool to manage domestic inflation. With control over interest rates and



For example, if Singapore aims to reduce imported inflation by bringing about an appreciation of the exchange rate, it cannot at the same time reduce interest rates. This is because the reduction in interest rates would cause a capital outflow leading to a fall in demand of Singapore dollar and put pressure on the currency to depreciate, thereby neutralizing the initial appreciation of the currency.	For example, if USA tried to increase interest rates to fight domestic inflation, it cannot devalue the exchange rate to increase net exports. This is because the increase in interest rates will attract capital inflows leading to a rise in demand for US\$, putting pressure on the dollar to appreciate.	exchange rate, it has to sacrifice free capital mobility. China controls capital mobility, i.e. funds cannot flow in and out of China easily.  In this case, China is able to manipulate interest rates and exchange rates as no capital flows can affect the interest or exchange rates. However, controlling capital mobility affects the flows of FDI and other investments.
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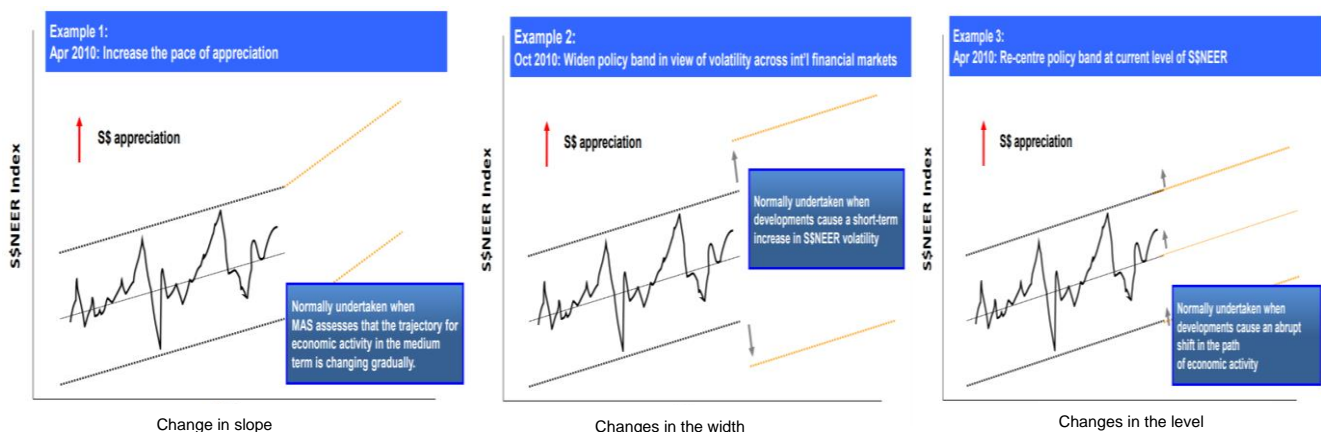
Given the above reasons, i.e. (a), (b) and (c), interest rate-centred monetary policy is not used in Singapore. Instead Singapore pursues an exchange rate centred monetary policy, in the form of a managed float.

### Characteristics of Singapore's exchange rate system:

Basket	Band	Crawl
<ul style="list-style-type: none"> <li>Our exchange rate is managed against a tradeweighted basket of currencies of our major trading partners and competitors.</li> <li>Mitigates volatility of international foreign exchange markets</li> </ul>	<ul style="list-style-type: none"> <li>The trade-weighted S\$ is allowed to float within an undisclosed policy band.</li> <li>Reduces short-term market volatility, provides flexibility in managing the exchange rate</li> </ul>	<ul style="list-style-type: none"> <li>The band allows the Singapore dollar to crawl upwards or downwards as opposed to a sharp movements.</li> <li>The MAS will buy and sell currencies in forex markets to keep the Singapore dollar within the band.</li> </ul>

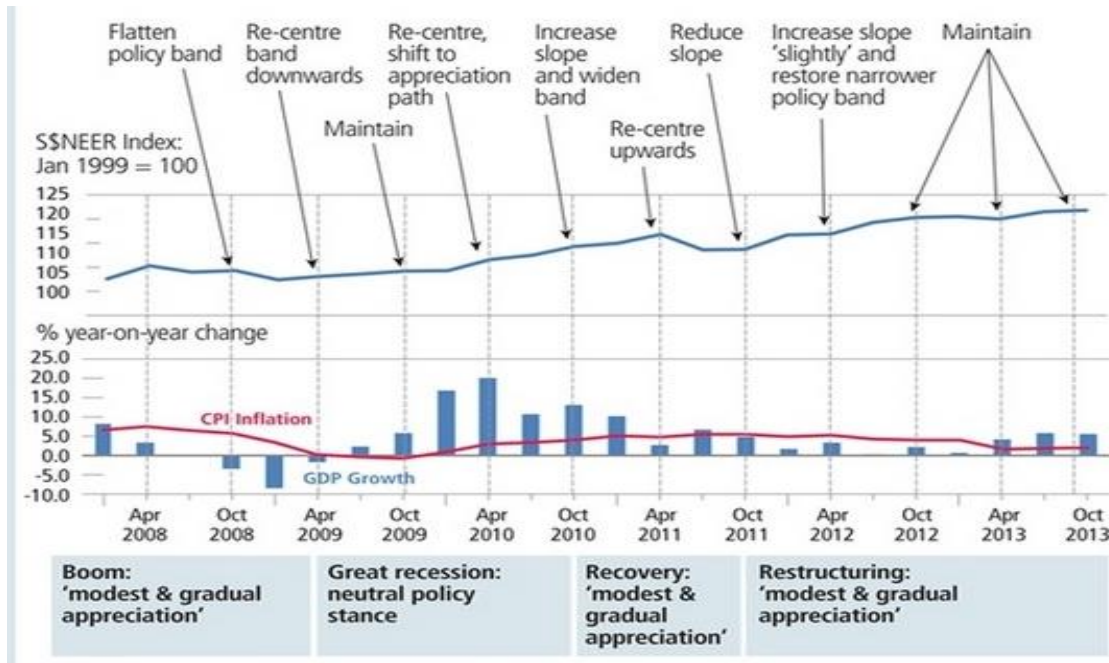
The Monetary Authority of Singapore (MAS) intervenes by determining the slope, width and level of the band. The slope determines the pace of appreciation, the width determines how volatile the currency movements can be, while the level reflects the underlying economic fundamentals. The MAS will assess the current economic activities in order to decide on changing the slope, width and level of the exchange rate band.

For example, in 2010, the MAS made adjustments to the slope, width and level of the band respectively due to the economic developments of that year.



Let us take a look at a snippet of MAS intervention timeline, between the years 2008-2013.

- We could see that **MAS tends to maintain a modest and gradual appreciation as a general stance** when economy experiences economic growth.
- However, **during economic uncertainties**, where economic growth is negative, the MAS flattens out or eases the exchange rate band to achieve a neutral policy stance, which is also known as a **zero appreciation stance**.



During the 2008 Global Financial Crisis, the MAS had flattened and re-centered the exchange rate band downwards, achieving a zero appreciation policy stance in 2008 to wade off the effects of falling regional currencies. In 2020, Singapore and the global economy is headed for a deep recession due to a global health pandemic, attributing to the coronavirus outbreak. The MAS seeks to address these economic uncertainties via a similar zero appreciation stance. Most recently in 2022, the MAS The MAS re-centred the mid-point of its exchange rate-based policy band up to prevailing levels but kept the slope and width of the band unchanged in order to combat inflation.

### 2.3.6 Effectiveness of Exchange Rate Policy with reference to the Singapore Economy

In Section 2.3.5, we have established the importance of exchange rate as the preferred Monetary Policy for Singapore.

There are many factors affecting the effectiveness of exchange rates policy in Singapore, which could be found in Section 2.3.3. From the Singapore perspective, the unintended consequences brought about by the use of exchange rate policies would be of utmost importance. MAS has to constantly balance the risks to growth and inflation to the Singapore economy, which will be elaborated below.



### **Unintended consequences of depreciation**

It is already mentioned earlier in Section 2.3.3 that **the unintended consequence of cost-push inflation would offset the initial gain in export competitiveness, hence dampening economic growth.**

In view of high risks of cost push inflation to an import reliant country. Hence, a zero appreciation stance is preferred over depreciation stance.

### **Unintended consequences of appreciation**

Import reliance implies exposes the economy to supply side shocks. Singapore faced oil shocks of the early 1970s and 1980s, and natural disasters such as floods or droughts, which raise price of imported FOP and cost of production in Singapore.

While the MAS could pursue an appreciation to reduce the price of imported FOP, it has to keep it modest and gradual to avoid excessively increasing the price of Singapore's exports in foreign currency.

As these shocks affect output and prices negatively, a general trend of mild appreciation stance can attempt to counter their adverse effects on the economy, although it cannot offset them completely.

### **Conclusion**

Given the small and open economy, Singapore faces many external volatilities that continually threatens her sustained economic growth, which requires the MAS to intervene, with careful considerations of the various exchange rate stances and their intended and unintended outcomes.

Ultimately, it is good to note that exchange rate policies effectiveness may still be hampered due to time lags and lack of perfect knowledge and reliable information. The MAS overcomes this by reviewing the exchange rate policy twice a year to ensure alignment of the policy to current economic conditions, by basing their decisions on reasonable assumptions of economic outlook and possible negative shocks.

It is unlikely for exchange rate policy to achieve inclusive growth and sustainable growth directly, hence there is a need to use Fiscal and Supply Side policies in order to achieve this objective.

## **2.4 SUPPLY SIDE POLICIES**

**Definition: Supply side policies** focus on influencing the aggregate supply (AS) to lower unit cost of production and increase SRAS and/or increase productive capacity and increase LRAS. While the reduction in costs and increase in SRAS helps achieve **actual economic growth**, the increases the long-term productive capacity of an economy and helps to achieve **potential economic growth**.

In general, supply side policies encourage the private sector to be as innovative, enterprising and competitive as possible either by giving incentives or by freeing up resources for the private sector. Both workers and entrepreneurs would be more responsive to changes in the economy and allow markets to operate more

efficiently. This will encourage **economic growth and employment** without adding to the risk of inflation.

Supply side policies can be used to help **reduce inflation** by increasing flexibility and competition in the labour market and increasing productivity of firms and workers.

Supply side policies can be categorized into:

- (i) **Market-oriented**; and
- (ii) **Interventionist supply-side policies**.

*\*Supply-side policies can also be categorised as short run and long run policies, affecting SRAS and LRAS respectively.*



#### **Video 7: Difference between Market Oriented & Interventionist SSP**

Weblink: [www.youtube.com/watch?v=K50N7b1WwNU](https://www.youtube.com/watch?v=K50N7b1WwNU)

Synopsis: What is the difference between the market-oriented and interventionist supply side policies?



### **2.4.1 MARKET-ORIENTED SUPPLY SIDE POLICIES**

**Market-oriented policies are aimed at freeing up the market in the belief that market forces always result in efficient allocation of resources.** Market-oriented supply side policies work at increasing the AS by freeing up the market to enable or encourage private enterprise. Market-oriented supply-side policies reduce the role of government intervention and regulation, putting more reliance on market forces and competition. Market oriented supply side policies can be organized in the following manner.

#### ▪ **Privatization**

**Privatisation involves the transfer of government owned enterprises to the private sector.**

Privatisation can lead to increased efficiency, provide more incentives to management and employees and introduce the flexibility necessary in a rapidly changing world. Companies such as Singapore Airlines, Singtel and Keppel Corp were once nationalised firms that have since been privatised in Singapore.

A large government sector may be more bureaucratic and less efficient than the private sector. This is because governments do not aim to achieve profit maximisation, and therefore may not be concerned about lowering costs through efficient use of resources.

Moving towards privatisation involves a reduction in government expenditure through reduction in the size of the government sector; or a more efficient use of resources within the government sector. Thus, privatisation of the government sector releases resources, e.g. capital, that are used unproductively to more productive activities. There will be positive impacts on the SRAS and LRAS.

In the short run, when faced with greater market competition, firms in the economy would also engage in extensive cost controls, spurring an **increase SRAS**, supporting actual economic growth and price stability in Singapore. In the long run, freed up resources will now be channelled into more productive uses, causing a rise in private investments. These investments would play a role in capital stock accumulation or further improving quality of resources, translating to an **increase in LRAS**, creating potential growth. **It will also increase AD through an increase in investments.**

- **Deregulation**

**Deregulating industries encourages more competition by removing artificial, legal barriers into an industry, and eliminating red tape in all sectors of the economy.**

The removal of barriers to entering a market creates contestable markets. New firms can easily enter and compete with existing firms, which can increase industry output levels, and at the same time force existing firms to improve their efficiency, quality and prices.

For example, the taxi industry in Singapore was deregulated in 1998. Taxi companies now own the ability to set their own fares and respond to market conditions – provided that they inform the government and the public in advance. In 2003, the taxi market was further liberalised to allow the entry of new companies, encouraging further competition to the benefit of commuters. In 2000, the Singapore government ended Singtel's monopoly in the telecommunications market. More recently, the government has further deregulated the market to allow a fourth telco, i.e. TPG, and other virtual mobile network operators, e.g. CirclesLife.

In the short run, markets are made more competitive, thus spur firms to be more dynamic efficient, i.e. searching for innovative ways to engage in extensive cost controls. The reduction in costs increases **SRAS**, supporting actual economic growth and price stability in Singapore. In the long run, there will be more new firms entering deregulated markets, aiding in a rise in private investments. These investments would play a role in capital stock accumulation or further improving quality of resources, translating to an **increase in LRAS**, creating potential growth. **It will also increase AD through an increase in investments.**



**Food for thought: The Case Against Deregulation**

Deregulation in markets may not always create competition. Instead, stronger firms may start to eliminate competition and result in these private firms gaining monopoly power instead. This in turn, leads to dynamic inefficiency. Since there is lesser competition and lack of government presence, there may not be incentive to innovate and cut costs, slowing down the SRAS and LRAS improvements.

Therefore, regulations are often used and strengthened in many countries to protect public interests such against abuse of monopoly power as well as clamping down on illegal cartels. This compels the firms to be dynamic efficient where they will find ways to be improve their productivity increasing SRAS and LRAS of the economy.

## ▪ Labour Market Reforms

**Labour market reforms seek to make labour markets more flexible as well as to increase the quality and quantity of labour supply.**

### Reducing trade union power

**Reduction of union power keeps wage costs low as some militant unions can demand for excessive wage increases which result in high costs of production for firms.**

In Singapore, the unions, employers and the Government collaborate, known as tripartism. Tripartism has helped boost Singapore's economic competitiveness, promoted harmonious labour-management relations and contributed to Singapore's overall progress. The tripartite partners are Ministry of Manpower (MOM), the National Trades Union Congress (NTUC) and Singapore National Employers Federation (SNEF).

In 2017, France reduced the power of trade unions, allowing firms to own greater flexibility in determining wages and working practices. This move helps to lower wage costs, leading to higher profits for firms.

The above two examples help to increase the SRAS of the economy, supporting actual economic growth and price stability. In the longer term, this should serve to encourage more investments. These investments would play a role in capital stock accumulation or further improving quality of resources, translating to an increase in LRAS, creating potential growth.



### **France's Macron signs labour reforms in law, defying protests**

(BBC, 27 Sep 2017)

Emmanuel Macron has formally signed an overhaul of France's labour laws, a key platform of his presidency. Thousands of protesters have condemned the reforms, which make it easier for companies to hire and cheaper to fire staff.

The new laws hand companies more flexibility in negotiating wages and conditions directly with employees, **rather than being bound by industry-wide collective deals negotiated by trade unions**. They also cap damages paid to workers for unfair dismissal. Employers have argued that costly and lengthy court cases often discourage them from hiring staff in the first place.

### Reduce restrictions in labour flow

**This involves reducing barriers to migration and encouraging inflow of human capital.**

In a recent development, the Economic Development Board (EDB) announced plans to launch Tech.Pass in 2020, a targeted programme to attract founders, leaders and technical experts with experience in established or fast-growing tech companies, to contribute to the development of Singapore's tech ecosystem. This move could be seen as reducing barriers to migration and encouraging inflow of human capital, increasing the supply of labour in Singapore. This would increase the quantity of resources, leading to an expansion of LRAS and potential growth.

## ▪ Encouragement of an Enterprise Culture

**This involves encouraging people and organisations to perceive opportunities and take risks in pursuing them. Having an enterprise culture makes innovation possible.**

The Startup SG Founder scheme was launched by Enterprise Singapore (a government agency formed to support the development of Singapore SMEs) in 2017. It aims to nurture Singapore's start-up scene by providing mentorship and grants to first-time entrepreneurs. An additional \$150m is used to enhance the program during the Covid-19 outbreak. One of the main reasons for the enhancements is to create more job opportunities for Singaporeans.

Having an enterprise culture makes innovation possible. This could spur more start-ups, contributing to a rise in domestic investments. These investments would then play a role in capital stock accumulation or further improving quality of resources. This translates into an **increase in LRAS**, creating potential growth.



#### **Singapore enhances scheme to encourage entrepreneurship**

(Osborne Clarke, 24 August 2020)

Amidst the economic disruption caused by the Covid-19 pandemic, start-ups have recently offered over 4,600 jobs as part of the government's support measures. With conventional employment opportunities currently squeezed, these enhancements may encourage more Singaporeans to take the road less traveled and explore their entrepreneurial interests.

#### ▪ **Tax Reforms**

**Tax reforms involves reducing taxes or provision of tax incentives, which creates incentive to work and invest.**

With lowered corporate taxes, firms can allocate freed up available resources into production of capital goods. This is also known as capital formation, causing a rise in investments. **It will increase AD in addition to any possible supply side effects.**

In a globalised world, multinational corporations will be attracted to countries where the tax burden is low. So a reduction in corporate taxes will increase investment flows into an economy. These investments would then play a role in capital stock accumulation or further improving quality of resources. This translates into an **increase in LRAS**, creating potential growth.

### **2.4.2 INTERVENTIONIST SUPPLY SIDE POLICIES**

Unlike market-oriented supply side policies that put more reliance on market forces and competition, and less on government intervention and regulation, **interventionist supply side policies aim to increase the AS by government interference to counteract the deficiencies of the market.**

The case for government intervention is that the free market is likely to provide too little research and development, training and investment, all of which stimulate supply side improvements. The following interventionist policies focus on ways in which the government can intervene to increase AS of the economy.

#### ▪ **Labour Market Reforms**

**Labour market reforms seek to make labour markets more flexible as well as to increase the quality and quantity of labour supply, in this case, with the help of more government presence.**

Investments in education and training can be seen as a type of labour market reform that is interventionist in nature. The world economy is constantly changing. To experience economic growth, resources in a country will need to be reallocated from industrial sectors that are declining and needing less resources into those that are expanding and requiring more resources. One major resource is labour. But many people are unwilling to uproot themselves or change jobs mid-career. Consequently, factor immobility may cause economic growth to slow down.

**Such intervention methods improves both quality and quantity of current and future labour supply.**

#### Investments in education

**Education target students of schooling age, who would be the future workforce. The aim of education is to build up a capable and resilient future workforce.**

To remain competitive in a smart technology-based economy, Singapore continues to increase its education expenditure, with \$12.83bn spent on education alone in 2019. In recent years, there is increased efforts in fostering creativity, risk-taking and to ensure certain sectors of society continues to receive quality education, in order to not be left behind. Hence, courses in the education system are constantly reviewed to design and equip new labour market entrants with the qualifications and skills that are needed by the various industries such as biomedical and healthcare.

Government investments into education increases future labour productivity, allowing future labour output to rise given fixed amount of resources and time. Firms will face lower wage costs, and lowered production costs. SRAS will rise. The rise in quality of future labour force also boosts the LRAS. This plays an important role in sustaining Singapore growth into the future.

**Other than its role in sustaining growth into the future, education has the ability to reduce income gap and intergenerational inequality, making the growth more inclusive.**

#### Investments in continuous education and training.

**Continuous education and training target the existing labour force and the unemployed.**

With shorter technology cycles and intense international competition, there a need for continued learning and refreshing of existing skillsets as job transitions will be common. It helps to improve human capital of the labour force and the unemployed in the short term. Governments can provide training schemes or engage private firms to provide training schemes.

#### **Skills Training and Development in Singapore**

(Ministry of Manpower, accessed on 16 December 2020)

**Continuous education and training** remain core to our society and economy today and for the future. With the fast pace of technological advancements and stronger global competition for jobs, skills upgrading and deepening are essential for Singaporeans to maintain a competitive edge. As our economy restructures and companies find ways to innovate and enhance productivity, the demand for higher-skilled workers will also increase.

Given these trends, the workplace must be a major site of learning, where every Singaporean is able to continue to develop themselves throughout their careers and through life.

In Singapore, there is a heavy emphasis of continual education and training, beyond formal education in schools. The government refreshed the Continuous Education and Training masterplan (CET) in 2014, further expanding training programs and facilities.

As part of the master plan, SkillsFuture Singapore (SSG), is a national movement to encourage life-long learning by providing Singaporeans with the opportunities to develop their fullest potential throughout life, regardless of their starting points. The movement included a SkillsFuture Credit of \$500 given to each Singapore Citizen above the age of 25, which could be used to offset education and training fees. Announced in the 2020 Singapore budget, a one-off SkillsFuture Credit top-up of \$500 will also be provided to every Singapore Citizen aged 25 years and above as at 31 December 2020. Furthermore, to improve individuals' access to career transition programmes, a one-off SkillsFuture Credit of \$500 will be provided to every Singapore Citizen (SC) aged 40 to 60 (inclusive) as at 31 December 2020.

Also, there are training grants targeted at low-income earners. An example would be the Workfare Skills Support, or WSS Scheme. This scheme encourages low wage workers to undertake training that leads to more impactful employment outcomes. Eligible individuals may receive training allowance for selected courses that individuals had paid for themselves and/or cash reward for completing training. In Budget 2022, the government issued a SkillsFuture Enterprise Credit to allow more Small & Medium-sized enterprises to be eligible due to waiver of skills development levy contribution requirements. They also got up to \$10,000 credit to offset up to 90% of the expenses for transformation initiatives.

Government investments into training directly increases existing labour productivity, allowing labour output to rise given fixed amount of resources and time. In the short run, firms' unit costs falls, allowing SRAS to rise. The rise in quality of labour force also boosts the LRAS of the economy, supporting Singapore in sustaining her growth.

Through quality training, labour would be able and willing to move to another place or another type of job, boosting the labour supply in markets with labour shortages. As the labour supply rises and eases the labour market shortages, wages falls. This will reduce wage costs in firms, allowing firms to reduce their production costs, boosting SRAS, positively impacting actual output and prices.

Quality training also helps the existing labour force to become more geographically and occupationally mobile. Increasing labour mobility allows labour to quickly transit into new industries as economic circumstances change, supporting economic growth during economic uncertainties. Also, if lower skilled labour to transit into middle or higher skill labour markets, which generally pay out higher wages. This can potentially reduce income inequality, making growth more inclusive.

#### Restrictions in labour flow

**Restrictions on inflow of foreign low skilled labour may encourage firms to invest more in training domestic labour and adopt technology to eliminate ease the labour shortage.**

Examples include Singapore tightening foreign worker quotas and increasing foreign worker levies. Assuming that the improvements in domestic labour productivity outweighs the costs of retraining and technology, SRAS can increase, contributing positively to economic output and price stability. The

rising domestic labour productivity is also indicative of a higher quality labour force, increasing the LRAS.

- **Provision of industry support**

**Governments support industries by encouraging more start-ups as well as growth and change in enterprises.**

An example would be the Productivity Solutions Grant in Singapore's 2022 Budget where firms are given grants to implement digital and automation solutions to raise productivity. The Grow Digital initiative (part of the same budget) also provided 70% co-funding to onboard cross-border digital platforms.

Another example would be the enhanced Enterprise Grow Package in 2020, aiming to help enterprises grow and create jobs, through provision more aid to enter new markets, innovate and adopt digital solutions through a new, multi-platform package.

These strategies may boost the level of domestic investments in the economy, contributing to capital formation eventually. More importantly, such a move helps to reduce reliance on foreign investments, hence reduce volatility in economic growth. Also, economic growth can now become more inclusive as small medium enterprises (SME) have more opportunities to grow and compete with existing large corporations. Hence, to ensure **inclusive** economic growth, government's support should not be biased towards certain sectors, such as high-tech based industry.

- **Investment in new technology**

**Research and development is the fundamental activity behind the development of new technologies.**

This can create improved capital goods, which is another important cause of increase in potential economic growth. Governments should invest strategically in certain sectors. The clean energy sector should be specially targeted for state support. This is to ensure the country's growth strategy is environmentally **sustainable** and promoting greener growth can also make economic expansion more inclusive since environmental impacts tend to affect the poor more adversely.

Examples:

- China's has committed a large investment in renewables due to the large potential for further production and consumption. It aims to develop renewable energy storage. By 2030, one-fifth of the country's electricity consumption is forecasted to come from non-fossil fuel sources.
- Singapore is committing close to S\$1b to develop new innovative solutions in the areas of renewable energy, temperature control and carbon capture, amongst others. The road to environmental sustainability will be further supported by other policies such as incentives, tax structures and regulations will be put in place to manage greenhouse gas emissions, including enhanced incentives and revision to vehicular tax structure i.e., excise duties and road tax to encourage the adoption of cleaner and more environmentally friendly vehicles. The Government will expand the public charging infrastructure for electric vehicles and take the lead to progressively procure and use cleaner vehicles.





## ▪ Direct Provision of Infrastructure

**Infrastructure is considered physical capital, which constitutes as part of the economy's pool of resources. Direct provision of infrastructure boosts the economy's quantity of resources.**

Progress in biomedical sciences is accelerating, presenting significant opportunities to Singapore. To reduce the aversion to high costs of research and development, Biopolis, a research and development hub was constructed at a cost of S\$500 million to attract biomedical firms.

Since direct provision of infrastructure boosts the economy's quantity of resources, LRAS increases and the economy experiences potential growth. The increase in G also increases AD, leading to actual growth.

The increase in biomedical start-ups will constitute as a rise in investment spending. These investments would then play a role in capital stock accumulation or further improving quality of resources. This translates into a possible rise in SRAS and LRAS.

Other examples of direct provision could be the building of communication and transportation infrastructure.

## ▪ Nationalisation

**It is the process by which countries purchase or own the industries or firms.**

It may result in higher investment than if they were under private ownership resulting in greater efficiency and increase in SRAS and LRAS. The higher investments also increase AD. However, this is the most extreme form of intervention, and is typically not done for most industries except for key transport and power industries, such as the railways and electricity generation.

### **Other Types of Supply Side Policies**

- **Removal of unemployment benefits [Market Oriented]**  
Reducing or removing unemployment benefits induces a higher labour force participation rate by forcing people to take self-responsibility as the state will not take care of them.
- **Wage subsidies [Interventionist]**  
Reducing wage cost by subsidizing wages. An example is the Wage Credit Scheme (WCS). The government will co-fund 20% of workers' wages [only for those who earns \$5000 and below]. In 2020, a total of \$450m subsidies to employers were given out.  
The Wage Income Supplement (WIS) provides cash payments and CPF contributions to supplement workers' income. This encourages Singaporeans to work by ensuring low income earners receive wage increases while ensuring wage cost for employers remains low. This prevents increase in COP and fall in SRAS.  
✓
- **Increase working participation age [Interventionist]**  
For example, Singapore's retirement age is currently 62 but the government is looking to extend it further. The age ceiling of re-employment has also recently been raised to 67 years of age. This keeps more workers in the labour force, slows down the shrinking of labour force size due to retirement.
- **Rationalisation [Interventionist]**  
Encouragement of mergers and other forms of industrial reorganisation which could lead to greater efficiency and higher levels of investment.
- **Advice and Persuasion [Interventionist]**  
Discussions with private firms to find ways to improve efficiency and innovation, bringing firms together to exchange information. This creates a climate of greater certainty for firms and industrial harmony, which in turn attracts higher levels of investment.
- **Provision of Information [Interventionist]**  
Government may provide information such as technical assistance, public research, information, export markets, etc.
- **National Economic Planning [Interventionist]**  
Government seeks to coordinate the plans of firms, industries and sectors and to recommend appropriate targets. Under this strategy, government recognises the uncertainties faced by firms. For example, the electricity industry plans to expand its output, but might not be able to ascertain the availability of coal or other fuels. Unless firms can know the plans of other firms, they may be cautious about taking investment decisions. Governments can help co-ordinate the planning between the electricity firms and raw materials suppliers. It can also help set achievable targets for both parties for output and investment.

**Note:**

- » Refer to Sloman, *Economics 8<sup>th</sup> Edition*. 2006, Prentice
- » You should refer to the recommended readings to find out how such policies work.



### Video 8: Supply Side Policies

Weblink: <https://www.youtube.com/watch?v=QjkwankfCso>

Synopsis: What are supply side policies and a quick summary of market oriented and interventionist supply side policies.



## 2.4.3 SUPPLY-SIDE POLICIES IN THE AD-AS FRAMEWORK

Assuming the Supply-Side Policies work, the resultant shift should always be an **outward shift of the AS curve**.

- In the short run, if cost of production is lowered, then SRAS will shift down.
- In the long run, if quality and quantity of resources are increased, then LRAS will shift right.
- Do take note that there may be slight variations in how each Supply-Side Policy impacts the AD-AS.

Note that Supply Side Policies may also have an impact on AD. Thus, it can achieve sustained economic growth.

As to whether the policies are able to ensure that the economic growth is inclusive, it depends on the type of Supply Side Policy. For example, it is more likely for investments into training to achieve inclusive growth than privatisation by levelling up the wages of the lower skilled workers.

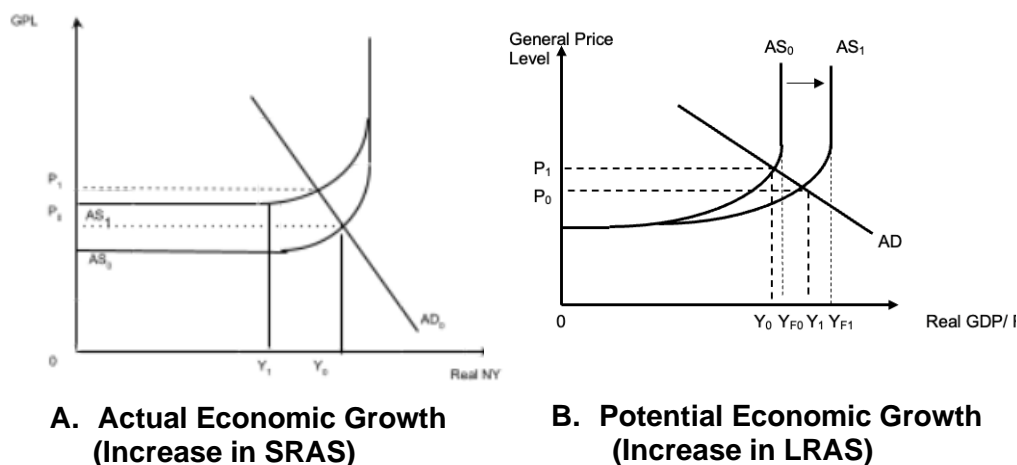
As to whether the policies are able to ensure that economic growth is sustainable, the policies must be implemented in such a way where the sustained economic growth that does not cause problems for future generations. For example, if investment in training comes at a cost of increasing taxes of future generations, this policy is not considered sustainable.

### Summary of two categories of SSP

<b><u>Market-oriented policies</u> aim to free up the market in the belief that market forces always result in efficient allocation of resources.</b>	<b><u>Interventionist supply-side policies</u> aim to increase the AS by government interference to counteract the deficiencies of the market.</b>
<ul style="list-style-type: none"> <li>• Market-oriented policies do not require increased government spending.</li> <li>• Sometimes, it may even involve a cut in government spending instead.</li> <li>• Market-oriented policies tend rely on free markets to attract private investments in, helping the economy increase AD, and most importantly, achieves its targeted rise in SRAS and the LRAS.</li> </ul>	<ul style="list-style-type: none"> <li>• These tend to involve increased government spending, also causes the AD to rise.</li> <li>• These policies directly boost the productive capacity of the country through improving quality of resources, quantity of resources or technology.</li> <li>• These policies also creates more stable business environments, further drawing in investments, which increases AD, and most important achieves its targeted rise in SRAS and LRAS.</li> </ul>

## 2.4.4 Use of Supply Side Policies in Promoting Sustainable and Inclusive Economic Growth

### 1) Mechanism



**Figure 13: Actual and Potential EG as a result of SSP**

Acronym	Steps	Description
A	1. AD/AS Factor and Component	<p>Links to SRAS component:</p> <ul style="list-style-type: none"> <li>Reducing wage cost by subsidising wages or wage increases. For example, the government co-funds 20% of wage increases under the Wage Credit Scheme (WCS) to help employers adjust to higher labour costs in tight labour market conditions. The Wage Income Supplement (WIS) provides cash payments and CPF contributions to supplement workers' income. If the government increases the <b>wage subsidies</b>, firms' wage costs fall, causing cost of production to fall.</li> </ul> <p>Links to LRAS component:</p> <ul style="list-style-type: none"> <li>With pro-competition policies and reduction in red tapes, there may be new firms coming in and hence greater degree of entrepreneurship, <b>this brings new technology and higher quantity of resources which increases productive capacity.</b></li> </ul>
S	2. SHIFT of AD/AS	SRAS increase (Shifts down); Figure 13A LRAS increases (Shift right); Figure 13B
A	3. ADJUSTMENT process	-
P	4. END POINT	<p>Actual and/or Potential Economic Growth Occurs</p> <ul style="list-style-type: none"> <li><b>Note that we can also link the above to AD increases and the end point will be the attainment of sustained economic growth.</b></li> </ul>

Refer to Sections 2.4.1 and 2.4.2 to draw links to inclusive and sustainable growth.

## 2. Evaluation of Policy

<b>Unintended Consequences</b>	<p><b><u>Impacts on income inequality</u></b></p> <ul style="list-style-type: none"> <li>▪ <i>Market-oriented policies</i> tend to achieve economic growth at the expense of income inequality. Market-oriented policies, such as deregulation and labour reforms, may contribute to increasing unemployment as firms have greater flexibility to cut wages and/or jobs. Also, tax reforms in the form of corporate tax cuts are likely to benefit capital owners, allowing them to enjoy most of the capital gains, interest and profits, at the expense of the workers. This will cause a rising divide between rich and poor, creating greater income inequality, making growth non inclusive.</li> <li>▪ In contrast, <i>Interventionist policies</i> that focus on investments in human capital makes workers more employable and increases labour mobility, allowing lower-skilled workers to transit into higher skill markets with higher pay as well as previously unemployed to be gainfully employed. Hence, such policies are able to better distribute the gains of growth throughout the population, resulting in more positive effects on income distribution over the long term.</li> </ul>
<b>Ability</b>	<p><b><u>Requires large amounts of government funds</u></b></p> <ul style="list-style-type: none"> <li>▪ Interventionist Supply-Side policies require high amounts of government spending. If the government needs to run persistent budget deficits that weaken long-term fiscal health of the government, the government may need to prioritise investment projects or seek to fund the increased spending through increased taxes or foreign borrowing.</li> <li>▪ The government may decide to impose heavier tax burden on future generations of the workforce, causing the economic growth to be unsustainable. To avoid a government default, i.e. government not servicing the public debt, the government may need to cut back its spending or raise taxes in future hence affecting its economic growth in future. High rates of taxes also reduce incentives to work. Economic growth will be unsustainable.</li> <li>▪ With years of prudent budget planning, Singapore has the means to adopt SS side policies. In contrast, countries with poor fiscal health may not have the means to implement supply-side policies that require high public spending and/or cut in tax. E.g. Greece has a high-accumulated debt-to-GDP ratio and it has no means to implement SS side policies.</li> </ul>
<b>Time</b>	<p><b><u>Implementation lag</u></b></p> <ul style="list-style-type: none"> <li>▪ Interventionist supply-side policies in the form of government investments tend to require time to take effect. Training of labour requires several months and</li> </ul>

	<p>education policies may take years before the students graduate and work.</p> <ul style="list-style-type: none"> <li>▪ Similarly, government investment into infrastructure or capital goods may take a while before they become productive. Therefore, time lag may result in AD expanding before AS and the initial rise in AD will lead to demand pull inflation in the short run, if the economy is already at or near to full employment.</li> <li>▪ This may have little relevance from the point of view of short-term economic management. For example, during a major recession, AD could be declining or is very low, focusing on increasing productive capacity (LRAS) of the economy is unhelpful unless there is a corresponding increase in AD.</li> </ul>
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### OVERALL EFFECTIVENESS OF SUPPLY SIDE POLICY IN ACHIEVING SUSTAINABLE AND INCLUSIVE GROWTH

Overall, Supply-Side Policies, regardless market oriented or interventionist largely play a vital role in creating potential growth (exception will be policies that only targets SRAS, such as the Wage Credit Scheme and Wage Income Supplement), supporting the economy in sustaining economic growth as AD rises. Of course, some of these supply side policies are capable of attracting investments and sustaining the economic growth.

As to whether the Supply-Side Policy can achieve sustainable and inclusive economic growth, it will be dependent on the type of Supply-Side Policy and how the policy is carried out. We have come to realise that Supply-Side Policies that are driven through debt cannot be sustainable, and Supply-Side Policies that promote free market interest is also most likely to widen the income gap.

Market-oriented Supply-Side Policies may create dynamic efficiency and promote a sustainable culture of innovation, but the growth may not be inclusive. A complete reliance on Interventionist Supply-Side Policies may create more inclusivity, but at the same time, it can be unsustainable for the government and increases the risk of government failure. **Hence, it is common for many countries to adopt a balance of both types of Supply-Side Policies.**

## Glossary

- **Economic Growth** is defined as an increase in real output of an economy
- **Actual Economic Growth** is defined as the percentage annual increase in *real* output over time, or the increase in **real** GDP/GNP/NNP over time.
- **Potential Economic Growth** is the rate of growth of *potential* output, which is the output that could be produced with full employment of resources.
- The fluctuation in GDP growth rates however follows a cycle of booms and recessions known as the trade or **Business Cycle**.
- **Inclusive Growth** refers to rate of growth that is *sustained* over a period of time and is **broad based across economic sectors for the majority of the country's population**.
- **Sustainable Growth** refers to a rate of growth that can be *maintained without creating other significant economic problems* (such as depleted resources, environmental problems, large public debts to repay), particularly for future generations.
- A **recession** is defined as a period of two consecutive quarters of negative economic growth. This occurs when there is a decline in output.
- A **Government Budget** is an annual financial statement presenting the revenues and spending for a financial year that is often passed by the legislation and presented by the Finance Minister to the nation.
- **Fiscal policy** refers to the use of **government expenditure** (G) and **taxation** (T) to influence the level of economic activity in an economy. It is mainly a demand management policy to attain the various macroeconomic aims.
- **Monetary policy** which is defined as the process by which the central bank uses various tools (interest rates, money supply, and exchange rate) to control the economy.
- **The interest rate centred monetary policy** is a form of monetary policy where the government intervenes by manipulating the money supply and interest rate in order to influence AD to achieve its economic objectives.
- **The exchange rate policy** is a form of monetary policy where the government intervenes by manipulating the exchange rate of its currency to achieve its macroeconomic objectives. It is often done to promote price stability as a sound basis for sustainable economic growth.
- **Supply-Side Policies** focus on influencing the aggregate supply (AS) to lower unit cost of production and increase SRAS and/or increase productive capacity and increase LRAS. While the reduction in costs and increase in SRAS helps achieve **actual economic growth**, the increases the long-term productive capacity of an economy and helps to achieve **potential economic growth**.
- **Output gap** is the measure of the difference between actual **output** of an economy and its potential **output**.



## Appendix 1: Fluctuations in Growth: The Business Cycle

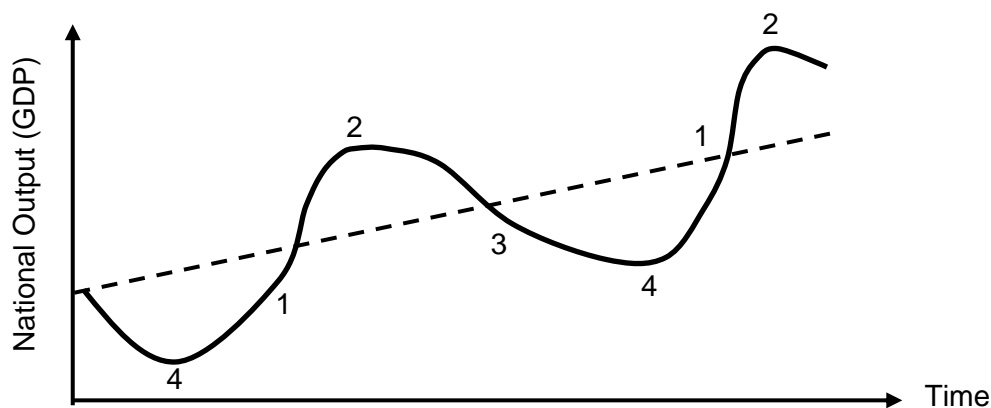


Figure 7: **Business Cycle**

National income / output or the country's level of economic activity (as measured by real GDP) does not change at a uniform rate. The fluctuation in GDP growth rates however follows a cycle of booms and recessions known as the Business Cycle. There are 4 phases of the business cycle: **expansion, peaking out, contraction and upturn.**

- 1) **Expansion:** The economy is booming with rapid economic growth – there is a fuller use of resources and the gap between actual and potential output narrows. There is an increase in various economic factors, e.g. production, employment, wages, profits, demand, investment opportunities, supply of products, sales and consequently, SOL.
- 2) **Peaking out:** The economic growth eventually slows down and output reaches its peak. Economic activities are higher, but do not increase further. The increase in the prices of inputs leads to an increase in the prices of final products, which in turn slows down demand for various products.
- 3) **Contraction:** The opposite of the expansion phase. Economic factors that went up in its expansion phase will now drop, and vice versa. Firms produce fewer goods and services, and reduce the number of people on their payrolls. As a result, people will have less income available to purchase the products that businesses produce, leading to a steady (and rapid) decline the demand of products. Increasing slack develops in the economy.
- 4) **Upturn:** This occurs when the economy begins to recover from the slowdown, and economic growth resumes. It includes the trough, where growth rate of an economy reaches its lowest point.

**Table 1: Economic Growth Rates in Singapore (%)**

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
15.2	6.2	3.4	4.4	2.9	1.9	2.0	3.6	3.2	0.7	-6.96



## Appendix 2: Methods to control Money Supply

There are a variety of methods that a central bank could employ to control the money supply. Assume in each case that the central bank wishes to reduce money supply. A restrictive (contractionary) monetary policy will result in a fall in the supply of money relative to the demand for money.

The monetary authority can reduce money supply by a variety of ways such as:

### a. Open Market Operations

Open Market Operations is the most widely used method. This involves the sale or purchase by the central bank of short-term government securities (bonds or bills) in the open market. When the central bank sells short-term government securities, liquid assets of the banks will reduce and this in turn raises interest rates. This is because the sale of securities will mean a transfer of funds from the banking sector to the central bank. This will limit the ability of the banks to create credit and therefore limit the growth in the money supply.

### b. Reduced Central Bank lending to the banks

The central bank in most countries is the main provider of liquidity to the wider financial system, or the “lender of last resort”. It is prepared to provide extra money to commercial banks on days where there are more money flows from the bank to the public (e.g. during periods when taxes are paid from people and companies bank accounts). To make up for this shortage, commercial banks can borrow from the Central Bank. Discount rate refers to short term rate which the Central Bank charges the commercial bank for funds borrowed. It can therefore choose the discount rate it wishes to charge to financial institutions requiring money. The interest rate at which the Central Bank is prepared to lend to the financial system is quickly passed on, influencing interest rates in the economy - for example the rate of interest on mortgages and the rates on offer to savers. With a higher discount rate during contractionary monetary policy, interest rates rises and borrowing becomes more costly, thereby checking Aggregate Demand.

### c. Variable minimum reserve ratios

The minimum reserve ratio is the minimum *fraction* of customer deposits and notes that each commercial bank must hold as reserves (rather than lend out). These required reserves are normally in the form of cash stored physically in a bank vault (vault cash) or deposits made with a central bank. The required reserve ratio can be used as a tool in monetary policy, influencing the country's borrowing and interest rates by changing the amount of funds available for banks to make loans with. In this case the size of the monetary base is not affected but the ability of banks to create credit and therefore the growth in the money supply is affected.

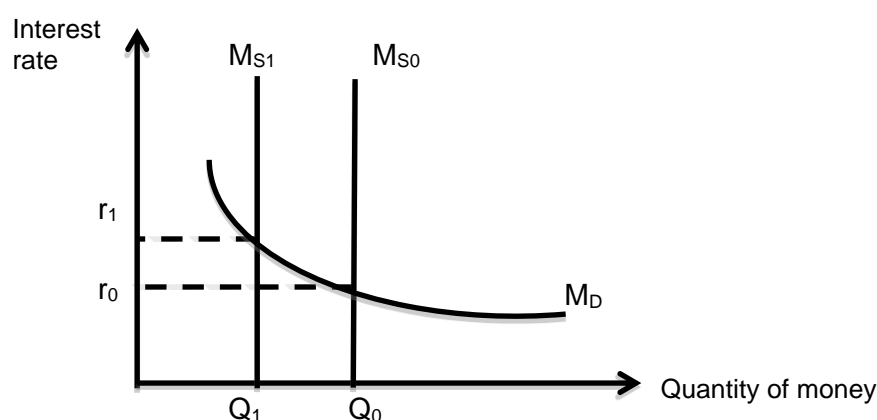
### d. Techniques to control interest rates

Another commonly adopted approach in many countries is to focus directly on interest rates. Basically, interest rates are determined by changes in money supply. Thus, central banks target a particular level of interest rates and achieve it by changing the money supply.

## Appendix 3: Theories relating to Money

### a) The Liquidity Preference Theory:

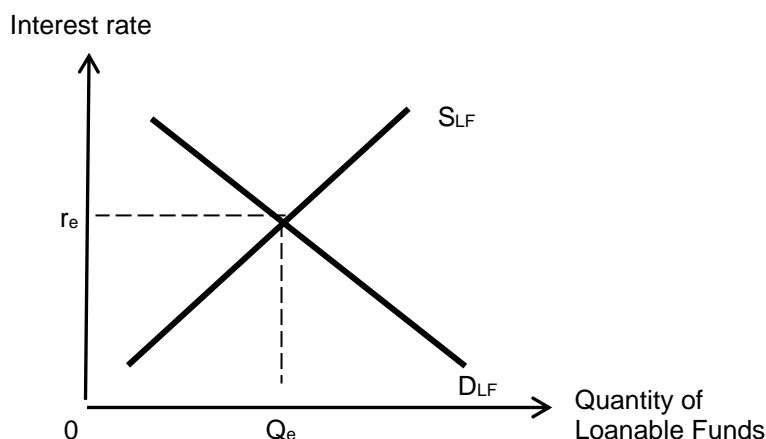
- This theory considers interest rates as the **price of holding money**. It is determined through the interaction of money demand and money supply.
- Households and firms demand money for transaction, precaution and speculative purposes. The demand for money,  $M_d$  is downward sloping because when interest rate is low, the opportunity cost of holding money is low, so the quantity of money demanded by households and firms will be high and the converse is true. As the demand for money increases, interest rates increases.
- The money supply is perfectly inelastic to interest rates (i.e. vertical straight line) and is fully controlled by the central bank. As the central bank reduces money supply (e.g. selling bonds – this reduces the currency in circulation), interest rates rises.



**Figure 1a: Interest Rate Determination using Liquidity Preference theory**

### b) The Theory of Loanable Funds:

- This theory considers interest rates as the **price of loans**. It is determined through the interaction of demand of loanable funds (borrowers) and supply of loanable funds (lenders). The demand for loanable funds depends on the willingness of firms to borrow funds for new investment projects as well as the willingness of households to borrow for the purchase of consumer durables. The lower the interest rate, the higher the returns expected from the investment project and the lower the cost of borrowing. Thus the demand curve for loanable funds is downward sloping. As the demand for loans increases, the interest rate rises.



**Figure 1b: Interest Rate Determination using Loanable Funds Theory**

- The level of savings in the economy determines the supply of loanable funds. The higher the rate of interest, the greater the rates of return to savings and the higher the opportunity cost of consumption. Thus the quantity supplied of loanable funds varies directly with interest rate.
- This can also be linked to money supply. As the central bank increases money supply (e.g. buying bonds increases the currency in circulation), interest rates fall as there is a greater supply of money for banks to loan out.

## Appendix 4: What is Quantitative Easing?

*What is quantitative easing and will it help Western economies?*

BBC News Business  
3 October 2012

Since the global financial crisis, both the Bank of England and the Federal Reserve have used the policy of quantitative easing (QE) to try to revive consumer spending and economic growth. As of September 2012, the Bank of England had committed a total of £375bn to QE, while on 14 September the Fed said it would spend a further \$40bn (£25bn) per month. This was on top of the \$2.3tn the Fed had already put into QE since 2008.

### What is quantitative easing?

Usually, central banks try to raise the amount of lending and activity in the economy indirectly, by cutting interest rates. Lower interest rates encourage people to spend, not save. But when interest rates can go no lower, a central bank's only option is to pump money into the economy directly. That is quantitative easing (QE).

The way the central bank does this is by buying assets - usually government bonds - using money it has simply created out of thin air. The institutions selling those bonds (either commercial banks or other financial businesses such as insurance companies) will then have "new" money in their accounts, which then boosts the money supply.

Prior to 2008, QE had never been tried before in the UK.

## **Is this printing money?**

These days the Bank of England does not have to literally print money - it is all done electronically. However, economists still argue that QE is the same principle as printing money as it is a deliberate expansion of the central bank's balance sheet and the monetary base.

## **How does it work?**

Under QE a central bank purchases government bonds from private sector companies or institutions, typically insurance companies, pension funds and High Street banks. This increased demand for the government bonds pushes up their value, thereby making them more expensive to buy, and so they become a less attractive investment. This means that the companies who sold the bonds may use the proceeds to invest in other companies or lend to individuals, rather than buying any more of the bonds.

The hope is that with banks, pension funds and insurance firms now more enthusiastic about lending to companies and individuals, the interest rates they charge fall, so more money is spent and the economy is boosted.

## **Quantitative Easing: Step by step**

First, with permission of the Treasury, the Bank of England creates lots of money. It does this by just crediting its own bank account.

## **How do you know if it has worked?**

A Bank of England report into the effect of its first round of QE suggested that the measure had helped to increase the UK's annual economic output by between, 1.5% and 2%, indicating that the effects of the programme had been "economically significant".

Yet some analysts have complained that since QE started in the UK in 2008 lending to businesses and individuals has remained sluggish. The simple fact is, no-one knows how bad the UK economy would have been without QE. As BBC economics editor Stephanie Flanders said: "Quantitative easing may well have saved the economy from a credit-led depression. We will never know."

## **Has anyone suffered?**

One of the effects of QE is to push up the market price of government bonds and consequently to push down the yield they give investors. This has two very important effects.

Firstly, QE has been cited as a major reason why UK company pension scheme deficits, calculated monthly by the Pension Protection Fund, have ballooned. That is because the cost of paying pensions from final-salary schemes is calculated on the assumption that all their assets are invested in bonds. As the yield on bonds has dropped, so the stock of assets needed to generate the same level of pension income has gone up. In May 2012 this collective UK pension scheme deficit reached a record high of £312bn. If this persists then it will have to be paid off by employers, presenting them with a very large bill.

Meanwhile the fall in bond yields has driven down the annual income someone can obtain, by buying an annual pension (an annuity) with their accumulated

pension pot. So, anyone retiring and trying to buy a private pension in the past year or two has lost potential income that they will never get back.

**Why are the UK and US's actions different from 1920s Germany and Zimbabwe?**

Printing money can be defined as the central bank financing of government debts. This is what happened in both 1920s Germany and Zimbabwe and what the British government will insist it is not doing, although the short-term effect is similar.

According to the Maastricht Treaty, EU member states are not allowed to finance their public deficits by printing money. That is one reason why the Bank of England has been buying government bonds from financial institutions, not directly from the government.

The Bank believes this form of QE is different because it is "printing money" as part of monetary policy - to prevent deflation. It is not printing money to help the government finance its deficit.

Also, unlike Zimbabwe, this is a temporary policy: the Bank expects to sell the government bonds back into the market when the economy recovers.

## **FOOD FOR THOUGHT - Selected Past Year A-Level Essay**

### **Questions Related to This Topic:**

Note: Many questions in the A level for Macroeconomic Policies involve content from previous topics (Macroeconomic Aims & Indicators Macroeconomic Issues & Problems) as well as future topics (Monetary Policy, Supply Side Policy and Interconnectedness of Problems & Policies). The questions presented here are no exceptions. You may not be able to provide a complete answer with merely the content knowledge in this set of notes.

#### **(2020 H2)**

- 4 Government expenditure on large-scale infrastructure such as airports and mass rapid transit (MRT) can contribute significantly to a country's economic growth.
- (a) Explain how government expenditure on large-scale infrastructure can contribute to a country's economic growth. [10]
  - (b) Discuss the extent to which such government expenditure on infrastructure projects will lead to a rise in the living standards of a country [15]

#### **(2019 H2)**

- 5 There is potential for governments to achieve both inclusive growth and sustainable growth.
- (a) Explain what is meant by inclusive growth and sustainable growth. [10]
  - (b) Discuss the extent to which it is possible for a small, open economy such as Singapore to achieve both inclusive growth and sustainable growth. [15]

#### **2018 (H2)**

- 5 It was suggested by economists early in 2017 that world interest rates were likely to rise in the future.
- (a) Explain why Singapore chooses exchange rates rather than interest rates as its main tool of monetary policy. [10]
  - (b) Discuss whether a rise in world interest rates would be of overall benefit to Singapore's economy. [15]

#### **2017 (H2)**

- 6 The Singapore economy grew by 1.8% on a year-on-year basis in the second quarter of 2015, sharply lower than the 2.8% growth in the preceding quarter, the Ministry of Trade and Industry (MTI) announced on Tuesday 11 August 2015.
- (a) Explain the internal and external factors that are likely to have contributed to this slowdown in the economic growth rate. [10]
  - (b) Discuss whether the policies aimed to increase the economic growth rate might cause difficulties for Singapore's economy. [15]

**2016 (H2)**

- 4 'The overall Singapore government budget for Fiscal Year 2013 is estimated to have recorded a surplus of S\$3.9 billion (1.0% of GDP).'

Source: Recent Economic Developments in Singapore, 6 June 2014, Monetary Authority of Singapore

Assess the likely impact of the budget surplus on the Singapore economy, both domestically and internationally. [25]

**2014 (H2)**

- 6 Since the economic crisis of 2008, rates of economic growth across the world have differed considerably.

(a) Explain the key determinants of actual and potential economic growth. [10]

(b) Assess the alternative economic policies that the Singapore government could adopt to maintain a sustained rate of economic growth into the future. [15]

**2012 (H2)**

- 5 During 2009 the Bank of England engaged in what is known as 'quantitative easing' by pumping more than £200 billion into the economy. Record low levels of interest rates have also been maintained within the UK economy. Quantitative easing and low interest rates were also adopted by the US.

(a) Explain why exchange rates rather than interest rates are the preferred choice as the instrument of monetary policy in Singapore. [10]

(b) Discuss the likely impact on the Singapore economy of quantitative easing and low interest rates in the US and the UK. [15]

**2010 (H2)**

- 4 The recent worldwide recession caused many governments to re-assess their use of fiscal policy in order to stimulate their stagnating economies.

(a) Explain what would reduce the effectiveness of fiscal policy as a stimulus to the Singapore economy. [10]

(b) Assess alternative policies that might be more appropriate in managing the Singapore economy when faced with a worldwide recession. [15]