

# ST ANDREW'S JUNIOR COLLEGE JC2 H2 ECONOMICS 2024

# Overview of Macroeconomic Policies and Policies to tackle slow/negative economic growth

In your previous set of lecture notes, we looked at the first of the four macroeconomic goals – sustainable and inclusive economic growth. We learnt why governments would want to achieve this goal and broadly what causes economic growth to happen.

In this set of notes, we will explore in depth how governments can achieve this macroeconomic goal. When countries are experiencing undesirable economic growth – persistently low or negative, unsustainable, non-inclusive growth, what policy options are available to governments to correct this?

We will start off by exploring the various tools a government has before zooming in on how these policies can be applied to achieving the goal of sustainable economic growth. The first section of the notes is thus crucial for you to understand the different policies.



# Important concepts and tools and analysis

- ♥ Discretionary fiscal policy
- Government budget surplus and deficit
- Monetary policy centred on exchange rates
- Monetary policy centred on interest rates
- Supply side policies



## Key questions to consider

- 1. What policy tools does a government have to achieve the 4 macroeconomic goals?
- 2. What is discretionary fiscal policy?
- 3. How is fiscal policy related to the government's budget?
- 4. How does fiscal policy help to achieve economic growth?
- 5. In what circumstances is the use of fiscal policy better than the use of other macroeconomic policies?
- 6. What is monetary policy centred on interest rates?
- 7. How does monetary policy centred on interest rates achieve economic growth?
- 8. In what circumstances is the use of monetary policy better than the use of other macroeconomic policies?
- 9. What are exchange rates?
- 10. How is the price of one currency in terms of another determined? For example, Singapore Dollars in terms of British Sterling Pound?
- 11. What is monetary policy centred on exchange rates?

- 12. How does monetary policy centred on exchange rates achieve economic growth?
- 13. In what circumstances is the use of exchange rates better than the use of other macroeconomic policies?
- 14. What policy tools are available to a government to influence the aggregate supply?
- 15. How do market-oriented supply-side policies achieve economic growth?
- 16. How do interventionist supply-side policies achieve economic growth?

# Contents

1.	Mac	roeconomic Policies	6
	1.1.	Types of Macroeconomic Policies	6
	1.2.	Demand-side policies	7
	1.2.1.	Expansionary Demand-Side Policy	7
	1.2.2.	Contractionary Demand-Side Policy	8
	1.3.	Supply-side Policies	9
2.	Fisco	ıl Policy	10
	2.1.	Tools of Fiscal Policy	10
	2.1.1.	Government Spending	10
	2.1.2.	Taxes	11
	2.2.	Discretionary Fiscal Policy	12
	2.2.1.	Expansionary Fiscal Policy	12
	2.2.2.	Contractionary Fiscal Policy	12
	2.3.	The Government Budget	12
	2.3.1.	Budget Positions	12
	2.3.2.	Financing Budget Deficits	13
	2.4.	Expansionary Fiscal Policy to Achieve Economic Growth	14
	2.4.1.	Government Spending	14
	2.4.2.	Taxes	15
	2.5.	Benefits of using Fiscal Policy to Achieve Economic Growth	15
	2.5.1.	Increase in Government Expenditure and its Effect on Aggregate Supply	15
	2.5.2.	Decrease in Direct Taxes and its Effect on AS	16
	2.6.	Limitations of Fiscal Policy	17
	2.6.1.	Crowding-out effects	17
	2.6.2.	Fiscal Sustainability	18
	2.6.3.	Time Lags	19
	2.6.4.	Accuracy of Forecasts	20
	2.6.5.	Small multiplier size	20
	2.6.6.	Choice of fiscal policy tool: Increase in G or decrease in T	20
	2.6.7.	Inflexibility	21
	2.6.8.	Method of financing	21
3.	Mon	etary Policy	22
	3.1.	Monetary Policy Centred on Interest Rates	22

3.2.	Expansionary Monetary Policy (centred on interest rates)	
3.2.1.	Impacts of a fall in interest rates on AD	23
3.3.	Benefits of an Expansionary Monetary Policy for Economic Growth	24
3.3.1.	Secondary supply-side effects	24
3.3.2.	Government Budget is unaffected	24
3.3.3.	Shorter time lag than fiscal policy	24
3.4.	Limitations of an Expansionary Monetary Policy (centred on interest rates)	24
3.4.1.	Interest elasticity of demand for money	25
3.4.2.	Marginal Efficiency of Investment	
3.4.3.	Availability of alternate source of funds	27
3.4.4.	Lack of accuracy or availability of information	27
3.4.5.	Time lags	27
3.4.6.	Openness to capital flows	27
3.4.7.	The Size of Multiplier	27
3.5.	Monetary Policy: Centred on Exchange Rates	
3.5.1.	Nominal exchange rate	
3.5.2.	Real exchange rate	
3.6.	Determination of Exchange Rates	
3.6.1.	The Demand Curve of a Currency (S\$) in the Forex Market	
3.6.2.	The Supply Curve of a Currency (S\$) in the Forex Market	
3.6.3.	Factors that affect the Demand for a Currency (S\$)	
3.6.4.	Factors influencing the Supply of a Currency	
3.6.5.	Summary of factors affecting the demand and supply of currencies	
3.7.	Managed Float System	35
3.8.	Use of Exchange Rate Policy to Achieve Economic Growth	
3.9.	Limitations of Exchange Rate Policy for Economic Growth	
3.9.1.	Relative Exchange Rate	
3.9.2.	Economic Conditions	
3.9.3.	Imported cost-push inflation	
4. Sup	ply-side Policies	
4.1.	Market-Oriented Supply-side Policies	40
4.1.1.	Encouraging competition	40
4.1.2.	Labour Market Reforms	41
4.1.3.	Incentive-related policies	41
4.2.	Evaluation of Market Oriented Supply-side Policies	42
4.2.1.	Advantages of Market Oriented Supply-side Policies	42
St. Andrew	's Junior College	

#### Economics Department 2024

4.2.2.	Disadvantages of Market-Oriented Supply-side Policies	42
4.3.	Interventionist Supply-side Policies	42
4.3.1.	Investment in human capital by providing training and education	42
4.3.2.	Investment in research and development (R&D)	42
4.3.3.	Investment in infrastructure by improving roads and communication lines	43
4.3.4.	Encouragement of mergers and other forms of industrial reorganisation	43
4.4.	Evaluation of Interventionist Supply-side Policies	43
4.4.1.	Advantages of Interventionist Supply-side Policies	43
4.4.2.	Disadvantages of Interventionist Supply-side Policies	43
4.5.	Use of Supply-Side Policies to Achieve Sustained Economic Growth	44
4.5.1.	Raising Rate of Capital Formation by Promoting Savings	44
4.5.2.	Reducing Government Expenditure, Release More Resources to the Private Sector	44
4.5.3.	Reducing taxes to raise work incentive	45
4.5.4.	Reducing Welfare Benefits	45
4.5.5.	Promote Education and Training	46
4.5.6.	Promote Factor Mobility	46



# What policy tools does a government have to achieve the 4 macroeconomic goals?

## 1. Macroeconomic Policies

An important issue in macroeconomics is whether markets, when left alone, will automatically achieve the four macroeconomic goals and allow people to have higher standards of living. If the free operation of market forces eventually leads to the attainment of these goals, it would not be necessary for government intervention (in the form of various policies, i.e., monetary, fiscal, and supply-side policies). We know of course that reality is not so neat. All governments intervene using macroeconomic policies in a bid to achieve the different macroeconomic goals.

## 1.1. Types of Macroeconomic Policies

There are three main types of macroeconomic policies which all governments could implement to achieve high and sustained economic growth. They are (1) Demand-side policies, (2) Supplyside policies, and (3) Trade policies.



## Fig 1: Summary of macroeconomic policies



## 1.2. Demand-side policies

Demand-side policies are policies in which the government attempts to influence the level of aggregate demand. In other words, governments attempt to alter the individual components of AD (C, I, G, (X-M)), such that AD changes. Governments can either implement an expansionary or contractionary demand side policy depending on the goals they are trying to achieve.

### 1.2.1. Expansionary Demand-Side Policy

**Expansionary Demand-side Policies** seek to increase Aggregate Demand and raise the level of the total spending in the economy

Assuming an economy is operating at the excess capacity range of output where  $AD_1$  cuts AS curve as shown in Fig 2a.

- ♣ An expansionary demand-side policy will increase the aggregate demand from AD<sub>1</sub> to AD<sub>2</sub> in total.
  - This includes the initial autonomous increase in AD (e.g., due to increase in G) and subsequent increases in induced C.
- The increase in aggregate demand will lead to an increase in total expenditure, ceteris paribus.
- As total expenditure increases, firms will need to employ more factors of production in order to increase their production to meet the increase in demand for goods and services.
- As a result, real national income (which is the sum of all factor incomes) will rise from  $Y_1$  to  $Y_2$  via the multiplier effect.





## 1.2.2. Contractionary Demand-Side Policy

<u>Contractionary Demand-side Policies</u> seek to decrease Aggregate Demand and lower the level of the total spending in the economy.

Assuming an economy is operating at the range of output with no spare capacity where  $AD_1$  cuts AS curve as shown in Fig 2b.

- A contractionary demand-side policy will decrease the aggregate demand from AD₁ to AD₂ in total.
  - This includes the initial autonomous decrease in AD (e.g., due to decrease in G) and subsequent decreases in induced C.
- The decrease in aggregate demand will lead to a decrease in total expenditure, ceteris paribus.
- As total expenditure decreases, firms will need to employ fewer factors of production to decrease their production to avoid building up of inventories due to the decrease in demand for goods and services.
- As a result, real national income (which is the sum of all factor incomes) will fall from Y₁ to
  Y₂ via the multiplier effect.



Fig 2b: Contractionary Demand-side Policy (AD/AS model)

There are two types of demand-side policies as shown in Fig 1, fiscal policy and monetary policy. We will study fiscal policy in Section 2 and monetary policy is Section 3.



## 1.3. Supply-side Policies

Supply-side policies are implemented when the government attempts to increase the level of short run aggregate supply (SRAS) and/or long run aggregate supply (LRAS).

Hence, policies that focus on these supply-side factors which increase the aggregate supply (AS), are known as supply-side policies. These policies aim to lower cost of production and achieve potential growth.

If an economy is to achieve sustained economic growth over the longer term, there must be continual potential growth. This means that there must be a continual rightward shift of the LRAS. The long-term growth of an economy is determined by supply-side factors such as advancement of technology, capital accumulation and the quantity and quality of resources including labour.

Supply-side policies can be categorised by mode of delivery:



They can also be categorised by their effects on the AS curve:



## 2. Fiscal Policy

Fiscal policy<sup>1</sup> involves the deliberate management of government spending/expenditure and/or taxation which are aimed at influencing the level of economic activity to achieve the macroeconomic aims.

## 2.1. Tools of Fiscal Policy

There are two main tools that a government can use to influence the level of aggregate demand in an economy. They are government spending and taxation.

## 2.1.1. Government Spending

Government spending includes:

♣ Capital Expenditure

Capital expenditure refers to the spending on building infrastructure such as new motorways and roads, hospitals, schools and ports. This increases the government expenditure (G) and leads to an increase in AD. Such expenditure also adds to the economy's capital stock and can have important demand and supply-side effects in the long term.

Current Government Expenditure

Current government expenditure refers to the spending on state-provided goods and services on a recurrent basis e.g. salaries paid to civil servants and resources for state education and defence. This also increases the government expenditure (G) and leads to an increase in AD.

Transfer Payments

Transfer payments are payments made for which there is no return of produced goods and services.

These include welfare payments as well as child benefits, baby bonus, state pension, student grants and unemployment benefits. The main aim of these transfer payments to the households is to improve income distribution such that a minimum standard of living for low-income households is ensured and help achieve inclusive growth. In Singapore, GST Vouchers have been introduced since 2012 to help the low-income households mitigate the impact of the GST. These transfer payments increase the consumption expenditure (C) of households.

Transfer payments could also be in the form of grants or subsidies given to firms such as the Productivity and Innovation Credit (PIC), Technology Enterprise Commercialisation Scheme (TECS), Increase SME Productivity with Infocomm Adoption & Transformation (iSPRINT), Action Community for Enterprise (ACE) Start-ups Scheme, etc. **These transfer payments increase the investment expenditure (I) of firms**.



<sup>&</sup>lt;sup>1</sup> The term fiscal measures may refer to any policy that involves changes in government spending or revenue. Using this definition, fiscal measures would sometimes cover both demand and supply-side management.



Note: Transfer payments do not increase the 'G' component in aggregate demand as the government does not demand goods and services when they make out these payments. Instead, as explained C and/or I increases.

## 2.1.2. Taxes

To finance government spending, government collects taxes as a major source of revenue. Taxes can be classified into: (i) Direct taxes and (ii) Indirect taxes.

- Direct taxes are taxes paid directly by an individual or an organisation to the government.
  Examples of direct taxes include:
  - Personal income tax is levied on an individual's income earned every year. This is calculated by establishing the individual's gross income (from employment and other sources) and subtracting various allowances, reflecting the taxpayers' responsibilities (single, married, children, etc).
  - Corporate tax (company or profits tax) is tax on the profits earned by commercial organisations.
  - **Capital gains tax** is a tax on the increase in the value of assets (property, stocks and shares) between the time of purchase and the time of sale.
  - Wealth taxes are taxes on wealth derived from owning assets. In many countries, typical wealth taxes include Property Tax and Inheritance Tax (or Estate Duty).
- Indirect taxes are taxes paid indirectly by an individual or organisation to the government via the sellers. i.e., An individual pays for their purchases (inclusive of indirect tax) to the sellers and, the sellers would, in turn, pay that indirect tax amount to the government. Indirect taxes may be specific (a fixed sum independent of the price of the good) or *ad valorem* (a given percentage of the price of the good).
- **&** Examples of indirect taxes include:
  - Custom duties levied on imported goods.
  - Excise duties levied on goods irrespective of the country of origin, the main examples being the taxes on tobacco, alcohol and petrol.
  - General expenditure taxes such as the value-added tax (VAT) in Europe and the goods and services tax (GST) in Singapore.



## What is discretionary fiscal policy?

## 2.2. Discretionary Fiscal Policy

If there is a fundamental disequilirium in the economy or large changes to aggregate demand, the government may choose to <u>alter</u> the level of government expenditure or rate of taxation.

**Discretionary Fiscal Policy** involves deliberate changes in the tax rates and/or government expenditure to affect aggregate demand to achieve macroeconomic objectives.

## 2.2.1. Expansionary Fiscal Policy

Governments may choose to use *expansionary fiscal policy* in times of recession. In this situation they will use expansionary fiscal policy to give a boost to the economy. This is applied when the economy is below full employment and there is a need to stimulate AD. The government may do this by **lowering taxes** and/or by **increasing the level of government expenditure**. This will encourage economic agents to spend more. The government may:

- ♣ increase government expenditure by increasing public works projects; or
- increase transfer payments; or
- \* reduce tax rates or eliminate certain taxes.

An increase in government expenditure or a reduction in tax will increase one or more components of AD. The series of increases in induced consumption spending that result from an initial increase in an autonomous component of AD result in a final increase in national income that is more than the initial increase in AD through the multiplier.

## 2.2.2. Contractionary Fiscal Policy

Contractionary / Deflationary fiscal policy is likely to be most appropriate in times of economic boom. If the economy is facing an inflationary gap which is likely to cause inflation and balance of payments problems, the government may **raise taxes** and/or **decrease the level of government expenditure**. This will discourage economic agents to spend more.



How is fiscal policy related to the government's budget?

## 2.3. The Government Budget

How does a government finance its spending? Are there any issues if a government overspends? The government budget lists the revenue and the spending of the government for the coming financial year. In Singapore, the fiscal year is from 1<sup>st</sup> April to 31<sup>st</sup> March.

## 2.3.1. Budget Positions

The budget can be in a surplus, balanced or deficit position.



- Budget surplus occurs when the government revenue exceeds government spending. The surplus is used by the government to repay debts and/or add to the government's reserves. A planned budget surplus may indicate that the government is pursuing contractionary fiscal policy to contract the economy when it is deemed to be overheating. On the other hand, an unplanned budget surplus may be recorded when the economy performs better than expected and tax receipts from personal income and corporate income tax increase.
- \* <u>Balanced budget</u> occurs when government spending is equal to government revenue.
- Budget deficit occurs when government spending exceeds government revenue. A budget deficit generally occurs when the government has to stimulate the level of economic activity in the country during periods of low growth or recession to raise AD, income and employment.

#### 2.3.2. Financing Budget Deficits

A government's spending is financed by the tax revenue it collects. However, in some circumstances, governments may run a budget deficit. To finance or pay for its spending, a government has two options:

- ♣ use past accumulated fiscal reserve or
- borrow

In the future, the government will either have less reserves to spend or tax revenues will have to be diverted to pay for the resulting debt and the interest incurred. As there will be less resources available in the future for the government to spend on social and developmental needs, the main consequence of budget deficits is the intergenerational transfer of welfare from future generations to the current ones.

Furthermore, excessive fiscal debt may result in capital flight<sup>2</sup> and sovereign debt<sup>3</sup> defaults which can create severe macroeconomic instability. To avoid such situations, a country may need to undertake painful austerity measures to restore investor confidence. Hence governments should try to maintain fiscal sustainability to avoid running into such problems.

<sup>&</sup>lt;sup>2</sup> Capital flight refers to the situation where investors rush to take their money out of an economy where the resulting outflow of currency is likely to lead to a sudden and substantial depreciation of the country's exchange rate.

<sup>&</sup>lt;sup>3</sup> Sovereign debt default refers to the situation where a government is unable to pay the interests that it owes to its creditors or is unable to redeem its debt that has matured.



## How does fiscal policy help to achieve economic growth?

## 2.4. Expansionary Fiscal Policy to Achieve Economic Growth

#### 2.4.1. Government Spending

- To achieve economic growth, the government can implement an expansionary fiscal policy, i.e. it can increase government expenditure such as building of infrastructure (e.g. defence and hospitals). Such increase in government expenditure will help to boost the total spending in the economy.
- Because government expenditure is a component of aggregate demand, aggregate demand increases when there is an increase in government expenditure. This is represented by a shift from AD<sub>1</sub> to AD<sub>2</sub> in Fig 3.
- The government could also increase its spending on transfer payment such as unemployment benefits. Such an increase in transfer payment will increase the individual's personal income and hence encourage consumption even when the individual is unemployed. This increases aggregate demand as well.<sup>4</sup>
- The increase in aggregate demand will lead firms to employ more factors of production in order to increase their production to meet the increase in demand for goods and services.
- As a result, real national income (which is the sum of all factor incomes) will rise from Y₁ to
  Y₂ via the multiplier effect.



<sup>&</sup>lt;sup>4</sup> Transfer payments can also improve income distribution and help achieve inclusive growth. Should such transfer payments target only the low-income group, the income gap between them and the higher-income group will narrow. The fruits of economic growth may now also be shared with those with low or zero income. This will help the economy attain inclusive growth.



## 2.4.2. Taxes

- To further boost the overall spending in the economy, the government could encourage the firms and households to increase spending by reducing the corporate and personal income tax rates respectively.
- The reduction in corporate tax rates would increase the firms' after-tax profits. The increase in after-tax profits will give firms more incentive to invest because the post-tax rate of returns on investment is now higher, ceteris paribus. A higher post-tax profit also results in more funds being made available for firms to invest in new capital goods. This increases investment (I), which increases AD in Fig 3 above.
- On the other hand, the reduction in personal income taxes will increase the households' disposable income and hence increase consumption (C). This increases AD.
- The increase in AD will lead firms to employ more factors of production in order to increase their output to meet the increase in demand for goods and services.
- As a result, real national income (which is the sum of all factor incomes) will rise from  $Y_1$  to  $Y_2$  via the multiplier effect.

## 2.5. Benefits of using Fiscal Policy to Achieve Economic Growth

Increases in government expenditure on infrastructure and reducing corporate taxes may have positive secondary supply-side effects on the economy.

## 2.5.1. Increase in Government Expenditure and its Effect on Aggregate Supply

- It is noteworthy to point out that if the government decides to increase government expenditure on building of infrastructure e.g., roads or schools, there would be an increase in the long run aggregate supply (LRAS). This increase in LRAS is known as the supply-side effects. Expansionary fiscal policy can have supply-side effects.
- ♣ With reference to Fig 4 below, the increase in productive capacity due to the newly built infrastructure increases LRAS from LRAS<sub>1</sub> to LRAS<sub>2</sub>. This results in an increase in the potential output from Y<sub>f</sub> to Y'<sub>f</sub>. Hence in the long run, the economy can experience potential growth.







#### Fig 4: Supply-side effects of Expansionary Fiscal Policy

- Due to the increase in productive capacity, real national income rises further from Y<sub>2</sub> to Y<sub>3</sub> while general price level falls from P<sub>2</sub> to P<sub>3</sub>, reducing inflationary pressures on the economy.
- While there are supply-side effects, which are secondary benefits for the economy, it is important to note that the main intention of the expansionary fiscal policy is to increase the AD from AD<sub>1</sub> to AD<sub>2</sub> in the short run in order to achieve the desired macroeconomic aims. Hence the increase in AS is an added benefit of the expansionary fiscal policy.

#### 2.5.2. Decrease in Direct Taxes and its Effect on AS

- The decrease in the corporate income tax encourages firms to take up investment as posttax profits increase. Since investment involves accumulation of capital goods, there will be an increase in the productive capacity of the economy, causing an increase in the LRAS from LRAS<sub>1</sub> to LRAS<sub>2</sub> as shown in Fig 4.
- ✤ With reference to Fig 4, the increase in productive capacity due to the accumulation of more capital increases LRAS from LRAS<sub>1</sub> to LRAS<sub>2</sub>. This results in an increase in the potential output from Y<sub>f</sub> to Y'<sub>f</sub>. Hence in the long run, the economy can experience potential growth.
- Due to the increase in productive capacity, real national income rises further from Y<sub>2</sub> to Y<sub>3</sub> while general price level falls from P<sub>2</sub> to P<sub>3</sub>, reducing inflationary pressures on the economy.

In summary, the expansionary fiscal policy that causes an increase in investment, and therefore AD, will create secondary supply-side effects.

Depending on the type of government expenditure and the changes in tax rates, an expansionary fiscal policy could bring actual growth and also potential economic growth. The use of fiscal policy could help the economy attain the aim of sustained economic growth because of its effect on potential growth.



## In what circumstances is the use of fiscal policy better than the use of other macroeconomic policies?

## 2.6. Limitations of Fiscal Policy

The effectiveness of expansionary fiscal policy is limited as it might not be able to increase national income by the desired amount. Note that the following limitations are also applicable to explaining why fiscal policy is limited in trying to achieve other macroeconomic goals.

## 2.6.1. Crowding-out effects

## a) Financial crowding-out effect

- An expansionary fiscal policy that involves an increase in government expenditure would lead to an increase in aggregate demand and hence real national income. However, this rise in government expenditure may crowd out private investment spending. This is especially true when the government has to borrow from the banks in order to finance the increase in its spending.
- When the government borrows money to finance the increase in government expenditure, the government will compete with the private investors for the limited amount of the loanable funds. As demand for the loanable funds increases, interest rate, i.e., cost of borrowing, will increase. You will learn more about interest rate determination under Monetary Policy.
- As a result of the higher interest rate, which causes an increase in costs of borrowing, firms may cancel or scale down their plans to expand or buy new capital equipment, ceteris paribus. In short, the higher interest rate will crowd out private investment i.e., reduce the level of investment. Hence the impact of the increase in government expenditure on real national income may be smaller (if any) because it can be partially or entirely offset by a fall in investment.

## b) Physical crowding-out effect

- Such a crowding-out effect can also occur when there are constraints of other resources such as land and labour. Given the limited resources e.g., land, the increase in government spending will cause greater competition for the use of these scarce resources. Due to the increase in demand for such resources, the prices of these resources e.g. cost of employing land (i.e., rental) and workers (i.e., wages) will increase, ceteris paribus. This leads to an increase in the cost of production.
- Such crowding-out effects will not occur if there is a large existence of spare capacity in the economy (i.e., when a large proportion of factors of production are unemployed, and the economy is operating along the Keynesian rage of the AS curve).



Try to answer the following question: Illustrate the dampened impact of an increase in G because of the physical crowding-out effect.

Note: Crowding out effect occurs when the increase in spending by one economic agent (usually the government) crowds out the desire to spend by another economic agent (firms or households). This would result in reduced intended rise in AD. Such crowding out, however, is unlikely to take place during time of recession as firms and households would likely have cut their spending due to bleak economic outlook and poor consumer sentiments in the first place.

In summary, due to the crowding out effect, the original intention of implementing expansionary fiscal policy to increase government spending might not necessarily lead to an increase in the national income by the desired extent.

## 2.6.2. Fiscal Sustainability

Use of expansionary fiscal policy necessitates draining of government funds. While a government with past fiscal reserves could always support such government spending and/or reduction in tax revenue to boost economic growth, other governments may need to borrow at times to achieve the same outcome.

Either way, the government will have less reserves in future (if it digs into its past reserves) or goes into fiscal debt (if it borrows). Fiscal debt, and its ensuing interest payments, needs to be repaid in the future. This means that part of future government revenues will need to be diverted to make such repayments when such revenues could be spent to meet social and developmental needs. The main consequence of current budget deficits is the intergenerational transfer of welfare from future generations to the current ones.

In addition, when a government incurs huge fiscal debts, capital flight and sovereign debt defaults<sup>5</sup> may result, which can create severe macroeconomic instability due to lack of confidence in the government's ability to implement policies when in need. In dire situations, the government may need to undertake painful austerity measures to restore investor

<sup>&</sup>lt;sup>5</sup> <u>https://www.thebalancemoney.com/what-is-the-greece-debt-crisis-3305525</u> Visit the website to learn more about Greek Debt Crisis in the 2010s



confidence. Hence, governments should try to maintain fiscal sustainability to avoid running into such problems.

## 2.6.3. Time Lags

- Fiscal policy can involve considerable time lags. If these are long enough, fiscal policy may be destabilising. For example, an expansionary fiscal policy to combat a recession may take effect when the economy has already recovered i.e. the level of economic activity is on the upswing. This may lead to the problem of over-heating in the economy as upward pressure on prices builds up.
- There are three different time lags when a government decides to adopt any type of policy and not just fiscal policy. These are:
  - a) Recognition Lag
  - b) Implementation Lag
  - c) Response Lag

## a) Recognition Lag

- This refers to the time taken for the government to recognise that there is a recession and thus the need to stimulate the economy.
- Since economic activities are complex, which make forecasting inaccurate, the government might at times be unwilling to take action until they are convinced that the problem is serious. Under such circumstances, if the government chooses to 'wait and see', it might be too late and difficult for the government to increase AD by the desired extent to bring about a recovery as the economy would have gone into a deep recession.
- Obviously, better forecasting would help the government to be less cautious and would thus help to shorten the time lag.

## b) Implementation Lag

- This is the time that it takes to put the desired policies into effect once policymakers recognise that the economy is in a slump. For example, the government would need time to deliberate and decide not just on the policies but also the right mix of policies to implement.
- In addition, existence of red tape may further lengthen the time lag between recognition of macroeconomic problems and the policies which the government needs to implement to stimulate growth.
- Hence, even though the government can recognise the need to stimulate growth, the delay in the implementation of the expansionary fiscal policy might similarly throw the economy into deeper recession.

## c) Response Lag

- ♣ This refers to the lag that occurs when the changes in the tax rates or government expenditure take time to take effect.
- In reality, a change in tax rates may not immediately affect individuals' income level and hence tax payments. Similarly, a change in corporate tax will not affect a firm's tax payments until the end of the financial year.



Again, the delay in the firms' and households' response to the changes might cause the expansionary fiscal policy to be less effective in achieving the desired level of aggregate demand at the right time, causing a deeper recession or create another problem i.e. inflation.

## 2.6.4. Accuracy of Forecasts

One possible reason for time lags mentioned above could be the lack of accuracy of forecasts. The government may have underestimated the depth of a recession or the seriousness of an unemployment situation. As such, the government's response using expansionary fiscal policy to increase government expenditure may be insufficient in increasing aggregate demand.

## 2.6.5. Small multiplier size

- The overall impact of government spending or taxes will depend on the size of its multiplier. Recall that the equation which summarises the impact of the multiplier on the national income is as follows:  $\Delta NY = k \ge \Delta J$  (k stands for the size of multiplier).
- An increase in government spending of \$1 million (ΔJ) will increase the national income (ΔY) by a factor i.e., the size of the multiplier (k). If the size of the multiplier is large, there would be a large increase in the national income.
- The size of the multiplier is dependent on the size of the marginal propensity to withdraw (mpw = mps + mpt + mpm). Various factors affect mps, mpt and mpm. For example, an open economy with higher dependence on imports, such as Singapore, will experience smaller multiplier effect compared to one which possesses more natural resources and is less import dependent. With a given level of government spending, the multiplied increase in national income in Singapore will be smaller compared to other less open economies.
- Hence, to create an increase in national income that is of the desired amount, a more open economy like Singapore must have a greater increase in government expenditure and/or a greater reduction in tax rates.

## 2.6.6. Choice of fiscal policy tool: Increase in G or decrease in T

- Given the openness of an economy, the size of the multiplier could also be affected by the way the government implements its fiscal policy. If the government chooses to decrease tax rates, the fall in tax revenue and the consequent rise in consumption will only result in a smaller multiplier effect as compared to the same increase in government expenditure.
- This is because when there is a fall in tax rates, the households might not necessarily spend the full amount of the tax savings as the increase in government expenditure. This is due to the fact that households might save part of the increase in disposable income due to the fall in tax rates. In other words, there is a withdrawal effect of mps when there is a fall in tax rate.
- Besides the intention to save, there are other reasons why households might not spend or consume when faced with an increase in disposable income:
  - If the tax cuts are temporary, consumers may not increase spending.



• An increase in induced consumption through a tax cut depends on the level of consumer confidence. If the consumers expect that the recession might worsen in the near future, they might not have the confidence to spend more now as they fear that they might get retrenched in the near future. This will result in households saving a larger proportion of the rise in disposable income.

## 2.6.7. Inflexibility

Once an increase in government expenditure has been implemented, it is difficult to cut back on them once the economy recovers. For example, once work on infrastructural development has begun, it cannot be stopped midway even if the economy has come out of the recession.

## 2.6.8. Method of financing

There are trade-offs involved in choosing the method of financing fiscal policy. The burden of fiscal policy may fall on the present or future generations. Moreover, there may be different downsides attributable to different methods of financing fiscal policy:

#### a) Higher taxes now or higher taxes in future

- Government spending has to be financed. The financing is usually through taxation or borrowing. Choosing to finance government spending through taxation now will burden the current generation because individuals will have lower disposable income after paying higher taxes. Countries that predominantly finance government spending this way will tend to run balanced budgets or budget surpluses (e.g. Singapore).
- However, the government may borrow to finance their spending. This debt has to be repaid by future generations when such loans are due for repayment. Moreover, interest has to be paid on such loans. When countries run large and persistent budget deficits, potential lenders may be willing to lend money only at higher interest rates. High interest payments can take a toll on the country's economic growth, because less money is available for government expenditure after interest payments are made. This was the case in Greece in the early 2010s.

#### b) Internal vs. external debt

- ✤ When debt is financed through borrowing from a country's residents, the crowding out effects discussed in section 2.6.1 may occur.
- When debt is financed externally, money is borrowed from foreign countries, and the country is exposed to changes in exchange rates because foreign creditors frequently lend money in their own currency.
  - For example, Argentina suffered a sharp devaluation of its currency, the Argentine peso, by around four times between 1998 and 2002. Because most of its debt was held externally in USD, this led to a ballooning of Argentina's debt in terms of Argentine pesos. This ultimately led to a default on their debt.



## 3. <u>Monetary Policy</u>

Monetary policy can refer to the use of interest rates or exchange rates as a tool for macroeconomic policy making. This section focuses on the use of interest rate.



## What is monetary policy centred on interest rates?

## 3.1. Monetary Policy Centred on Interest Rates

Monetary policy using the interest rate as the key tool is a discretionary policy used to affect AD by changing the money supply or interest rate in order to achieve a country's key macroeconomic objectives.

The money supply is commonly defined as the quantity of money in circulation in the economy. It can be adjusted by the country's central bank to influence the interest rate in the country.

Interest rate is the cost of borrowing money or the returns to savings.

When the interest rate changes, firms and households will react to this change by changing the amount that they borrow or save, affecting I and C and hence AD in the economy.

How does monetary policy centred on interest rates achieve economic growth?

## 3.2. Expansionary Monetary Policy (centred on interest rates)

Monetary policy is formulated and implemented by a country's monetary authority, which is usually the country's central bank. A central bank may implement an expansionary monetary policy (or "monetary easing") during a period of negative or slow economic growth.

Interest rates can be thought of as the 'price of money' and is determined by market supply of and demand for money. Typically, reducing the interest rate (expansionary monetary policy) involves increasing the money supply from  $MS_1$  to  $MS_2$  in the economy to bring about a reduction in interest rates from  $r_1$  to  $r_2$  in Fig 5 below. (Refer to Appendix 1 for more information on how money supply in an economy may be increased.)



St. Andrew's Junior College Economics Department 2024



## a) Impact on C and I

A reduction in interest rate reduces the cost of borrowing for investment and increases the returns on investments, ceteris paribus. Thus, firms will have more incentive to borrow for further investments, leading to a rise in investment expenditure.

Similarly, a lower interest rate reduces the cost of borrowing for households and therefore households are more inclined to borrow for spending (especially on consumer durables) which increases consumption expenditure in the economy.

#### b) Impact on net exports

Furthermore, if a country adopts a flexible exchange rate system (see Section 3.6), the reduction in interest rates may also lead to a secondary effect on its exchange rates.

A reduction in interest rate relative to other counties would also result in an outflow of hot money from that country. This would increase the supply of domestic currency in the foreign exchange market, resulting in a depreciation of the country's currency against other currencies.

When currency depreciates, the price of exports in foreign currency falls. This causes the demand for exports to increase and the export revenue (measured in domestic currency) will increase. The price of imports in domestic currency increases. This causes the quantity demanded of imports to decrease. Overall, this would lead to an increase in net exports.

The increase in consumption, investment and net exports may be represented by the increase in AD from  $AD_1$  to  $AD_2$  as shown in Fig 6 below.





When aggregate demand increases, firms in the economy face increasing demand for their goods and services. Hence, firms are incentivised to increase production. In order to raise production, firms hire more factors of production, including labour. This will ultimately result in an increase in real national income from  $Y_1$  to  $Y_2$  via the multiplier effect.



# In what circumstances is the use of monetary policy better than the use of other macroeconomic policies?

## 3.3. Benefits of an Expansionary Monetary Policy for Economic Growth

Besides the impact of lowering interest rates on economic growth, expansionary monetary policy can also bring about other benefits to the economy.

## 3.3.1. Secondary supply-side effects

Lowering interest rates reduces the cost of investments and thus increases investments by firms. Firms may invest in new and more productive technologies and increase their stock of capital. This increases the productive capacity of the economy and increases the LRAS. Economic growth achieved via an increase in AD (through an increase in investments) that coincides with an increase in LRAS is more likely to be sustained. This is because increases in LRAS ensure that there is sufficient spare capacity to accommodate increases in AD, preventing the economy from overheating.

## 3.3.2. Government Budget is unaffected

Expansionary monetary policy through interest rate reductions does not negatively impact the government budget. In contrast, fiscal policy requires the government to consider how it will finance government spending. This may be through increase in tax rates.

## 3.3.3. Shorter time lag than fiscal policy

Expansionary monetary policy via lowering interest rates may benefit from a shorter time lag in comparison to certain types of fiscal policy.

The decision to lower interest rates is generally announced and comes into immediate effect. However, increases in government expenditure typically require parliamentary approval in democratic countries. This delays the implementation of any increase in government spending.

If a government wants to adopt an expansionary policy to increase consumer and investor confidence, expansionary monetary policy can have a more immediate effect.

## 3.4. Limitations of an Expansionary Monetary Policy (centred on interest rates)

If prudently and effectively managed, an expansionary monetary policy can be effective in reducing interest rates, thereby stimulating consumption and investments, and thus aggregate demand. In so doing, economic growth can be achieved with an increase in national income and national output.

The following factors can affect the effectiveness of monetary policy.



#### 3.4.1. Interest elasticity of demand for money

♣ Interest rate is the price of money which is determined where the demand for money (M<sub>d</sub>) and supply of money (M<sub>s</sub>) intersect in the market for loanable funds.



Fig 7: Interest elasticity of demand for money

- In Fig 7, the initial equilibrium level of interest rate of an economy is at r1 where MS1 intersects with Md. The increase in money supply from MS1 to MS2 would lead to a reduction in interest rates from r1 to r2. This will encourage higher consumption and investment, thereby leading to an increase in aggregate demand and real national income via the multiplier process. The expansionary monetary policy adopted is thus effective in achieving economic growth.
- However, supposing the demand for money is perfectly interest elastic (this is known as the Liquidity Trap), any further increase in money supply from MS<sub>2</sub> to MS<sub>3</sub> will not have any impact on the level of interest rate. Hence, when faced with a liquidity trap, expansionary monetary policy is unlikely to bring about economic growth because interest rates cannot be reduced further.
- Demand for money becomes perfectly interest elastic beyond a certain interest rate because if the interest rate is too low, it may be preferable to hold liquid assets (i.e., cash) instead of lending it out. Since interest rate cannot be further reduced, it renders monetary policy ineffective.
  - e.g., If interest rate is zero or close to zero, you wouldn't earn interest from lending money out.
- ♣ Quantitative Easing
  - Following the 2008-9 financial crisis, the short-term interest rates of some countries (such as the United States and the Eurozone) hovered close to zero, representing a liquidity trap. An alternative to conventional monetary policy has been pursued in the form of quantitative easing.
  - Quantitative easing involves repurchasing government bonds and other financial assets by the government in the open market. The holders of these government bonds and financial assets, usually the households and firms, receive monetary payments, leading to an increase in money supply in the economy.
  - If and when the households and firms utilise the monetary payments to purchase other assets (such as property and machinery), there will be an increase in AD. Since



- it is likely that the economy is operating below full capacity, increases in AD will lead to economic growth.
- Quantitative easing is classified as an expansionary monetary policy.

#### 3.4.2. Marginal Efficiency of Investment

The marginal efficiency of investment measures the rate of return of an investment.



- The interest elasticity of demand for investment affects the effectiveness of an expansionary monetary policy.
- In Fig 8, when faced with a relatively interest inelastic MEI (Marginal Efficiency of Investment), MEI<sub>1</sub>, a reduction in interest rate from r<sub>1</sub> to r<sub>2</sub> would only increase investment from I<sub>0</sub> to I<sub>1</sub>, leading to a limited rise in aggregate demand and, hence, real national income. Demand for investment is interest inelastic if business outlook is poor. Firms would not increase borrowing by much even when interest rate falls because they want to avoid taking risks. Hence, the effectiveness of expansionary monetary policy is reduced.
- However, the same reduction in interest rate will increase investment from  $I_0$  to  $I_2$  when the demand for investment is much more interest elastic (MEI<sub>2</sub>). This will mean a more significant rise in aggregate demand and hence real national income.



Fig 9: Shift of MEI



- Moreover, other factors affect the MEI. At the same interest rate r<sub>1</sub>, the quantity of investment would be higher if the MEI was higher. Factors that will increase the MEI from MEI<sub>1</sub> to MEI<sub>2</sub> in Fig 9 include:
  - A lower cost of capital, because the expected returns from investment will increase;
  - Technological change, because the expected returns from investment will increase with better technology.
  - Business confidence, or 'animal spirits', because businesses are more willing to invest if they have confidence in the future state of the economy.
  - A lower rate of corporate taxes because taxes erode profits. If taxes are lower, posttax profits will be higher, leading to higher expected returns from investment.

## 3.4.3. Availability of alternate source of funds

♣ A fall in interest rate may not increase investment significantly if foreign direct investments constitute a large proportion of investments in the country. Such investments have their own source of funding and do not depend on local banks for their funds.

## 3.4.4. Lack of accuracy or availability of information

There may be a lack of accurate or available market information in a dynamic financial environment to formulate a sound and effective monetary policy. For example, there may be insufficient information about the extent of change in AD that is required to achieve the desired growth rate, ceteris paribus.

## 3.4.5. Time lags

It can take a fairly long time for the expansionary monetary policy to take effect. Owing to the time lags between recognition of the problem, policy formulation and implementation of an interest rate cut to achieve the desired growth rates, changes in monetary policy can be mis-timed and bring forth other problems, such as inflation.

## 3.4.6. Openness to capital flows

- Assuming a country is open to capital flows, when the central bank reduces interest rate in an attempt to increase AD, the fall in interest rates will lead to hot money outflows due to lower rate of returns.
- Hot money outflow represents more funds leaving the banking sector and the country. This eventually leads to a fall in the money supply which in turn results in a rise in interest rate, negating the expansionary monetary policy.
- Hence, monetary policy may not be a feasible tool if the country is open to capital flows.

## 3.4.7. The Size of Multiplier

Monetary policy can be less effective due to high withdrawals or leakages from the circular flow of income, resulting in a smaller size 'K'. When leakages are high, then less income will flow back into the circular flow of income which will result in the overall increase in AD



being small, causing a smaller increase in real national income and hence a lower rate of economic growth.



What are exchange rates?

## 3.5. Monetary Policy: Centred on Exchange Rates

Foreign exchange refers to the trading of one country's currency for another country's currency. Like many goods and services, trading takes place in the foreign exchange market where currencies are bought and sold by individuals, banks, forex brokers and other financial institutions.

The foreign exchange rate is the price of a domestic currency in terms of a foreign currency.

It is the rate at which one currency is exchanged for another. This exchange rate of a currency reflects its external value. For example, the exchange rate of S\$1 is RM3.5 and that of US\$1 is S\$1.33 as of Dec 2023.

## 3.5.1. Nominal exchange rate

The nominal exchange rate is simply the price of one currency in terms of another. For example, we can quote the price of the Singapore dollar in terms of the Indonesian rupiah or the price of the US dollar in terms of the Japanese yen. Changes in the nominal exchange rate of a country's currency with respect to another will affect the transaction prices of goods and services traded between these two countries.

## 3.5.2. Real exchange rate

- Changes in a country's exchange rate will affect the transaction prices of goods and services which that country exports and imports. These transaction prices are not only affected by changes in the exchange rate but they are **also affected by the differences in inflation rates between trading countries**.
- As a result, the real effective exchange rate (REER) can be calculated when nominal exchange rates are adjusted for changes in the relative rates of inflation.
- For example, if a country's currency depreciates, this means that exports become relatively cheaper to foreigners in foreign currency, ceteris paribus. However, if this exporting country is suffering from a higher rate of inflation compared to its trading partner, in real terms, the prices of its exports could actually be higher.
- Whether the prices of exports would rise or fall essentially depends on the changes in the exchange rates, <u>as well as</u> the relative inflation rates in the two countries.
- The REER takes both exchange rate changes <u>and</u> price changes into account and it is a more accurate way of measuring changes in the competitiveness of an economy's goods and services in international markets.



## How is the price of one currency in terms of another determined? For example, Singapore Dollars in terms of British Sterling Pound?

## 3.6. Determination of Exchange Rates

Similar to how prices of individual goods and services are determined by the demand for and supply of these goods and services in microeconomics, exchange rates are also determined by the demand for and supply of that particular currency.

## 3.6.1. The Demand Curve of a Currency (\$\$) in the Forex Market

- The price of S\$ (measured in £) is plotted on the y-axis and the quantity of S\$ on the x-axis. Moving down the vertical axis means the S\$ becomes cheaper, i.e. S\$ now costs fewer £. Fewer £s are needed to buy S\$1. The S\$ is *depreciating against the* £. Moving up the y-axis means the S\$ is *appreciating against the* £.
- The demand curve is downward-sloping because if the S\$ depreciates, the price of Singapore's exports in terms of £ will fall, ceteris paribus, leading to an increase in the quantity of Singapore-made goods being demanded by the British. Hence, more S\$ will be demanded by the British.
- ♣ When the S\$ depreciates against the £, quantity demanded of S\$ rises:

	Exchange rate	Price in S\$	Price in £
Initial	S\$1 = £0.50	S\$2	£1
Final	S\$1 = £0.10	S\$2	£0.20

## Table A: Singapore Dollar depreciating against the British Pound

As seen in Table A above, when the S\$ depreciates against the  $\pounds$ , fewer  $\pounds$  are needed to buy S\$1 and goods sold by Singaporean companies are cheaper in terms of  $\pounds$ . Therefore, the quantity demanded of S\$ rises because more British will purchase cheaper Singapore-made goods.

♣ When the S\$ appreciates against the £, quantity demanded of S\$ falls:

Table B: Singapore Dollar appreciating against the British Pound

	Exchange rate	Price in S\$	Price in £
Initial	$S\$1 = \pounds0.50$	S\$2	£1
Final	S\$1 = £0.80	S\$2	£1.60

As seen in Table B above, when S\$ appreciates against the £, more £ are needed to buy S\$1 and goods sold by Singaporean companies are more expensive in terms of £. Therefore, the quantity demanded of S\$ falls because fewer British will purchase more expensive Singapore-made goods, and less S\$ is required to purchase goods from Singaporean firms.



Therefore, similar to what was learnt under the law of demand, the lower the exchange rate of the S\$ in terms of £, the greater the quantity demanded for S\$.

## 3.6.2. The Supply Curve of a Currency (S\$) in the Forex Market

- The supply curve of S\$ in the forex market is upward sloping.
- If the S\$ depreciates in value, ceteris paribus, the price of British-made goods in terms of S\$ rises.

	Exchange rate	Price in €	Price in S\$
Initial	S\$1 = £0.50	£1	S\$2
Final	S\$1 = £0.25	£1	S\$4

#### Table C: Singapore Dollar depreciating against the British Pound

For example, in Table C above, initially  $S$1 = \pounds 0.50$ , a British-made good that costs  $\pounds 1$  would cost S\$2. If the S\$ depreciates to S\$1 =  $\pounds 0.25$ , the same good now costs S\$4, ceteris paribus. Singaporeans will buy fewer of the more expensive British-made goods and thus need less  $\pounds$ . This results in a fall in the quantity of S\$ supplied because less S\$ is supplied to the forex market to buy  $\pounds$ .

If the S\$ appreciates in value, the price of British-made goods in terms of S\$ falls, ceteris paribus.

	Exchange rate	Price in €	Price in S\$
Initial	S\$1 = £0.50	£1	S\$2
Final	S\$1 = £1	£1	S\$1

Table D: Singapore Dollar appreciating against the British Pound

For example, in Table D above, initially S\$1 = £0.50, a British-made good that costs £1 would cost S\$2. If the S\$ appreciates to S\$1 = £1, the same good now costs S\$1, ceteris paribus. Singaporeans will buy more of the cheaper British-made goods and thus need more £. This results in a rise in the quantity of S\$ supplied because more S\$ is supplied to the forex market to buy £.

Like most supply curves, which show a direct relationship between price and quantity supplied, the higher the price of S\$ in terms of £ i.e., the exchange rate, the greater is the quantity supplied of S\$.



#### 3.6.3. Factors that affect the Demand for a Currency (\$\$)

The demand for a country's currency will come from the holders of foreign currencies who desire the goods, services and the long- and short-term capital assets of the home country. For example, British residents who want to buy Singapore-made goods will demand S\$ in exchange for their £.

#### a) Demand for goods and services that are produced in Singapore

For example, British importing Singapore-made furniture and British families spending their holidays in Singapore. The demand for a country's exports in turn depends on:

#### The relative inflation rates

- Take 2 countries Singapore (home) and the UK (foreign): Let's say the inflation rate of Singapore is higher than that of the UK.
- $\circ$  If there is a significant rise in the general prices of home-produced goods relative to that of foreign goods, consumers in Singapore would prefer to import certain UK goods which are relatively cheaper than similar locally produced goods. This increase in demand for the relatively cheaper UK imports results in an increase in demand for the £ and simultaneously an increase in supply of the S\$ (home currency) in the foreign exchange market. The increase in supply of S\$ will reduce the value of S\$.
- At the same time, ceteris paribus, consumers in the UK prefer to buy from elsewhere since Singapore goods are relatively more expensive now with the relatively higher inflation. Hence the demand for S\$ falls from DD<sub>S\$</sub> to DD<sub>S\$</sub> and the supply of S\$ rises, as shown in Fig 10. This will then lead to a decrease in the value of the Singapore dollar from S\$1 =£0.33 to S\$1 = £0.30.







#### ✤ Structural Changes

Reduction in a country's production costs and R&D successes leading to product innovation such as Singapore's water treatment technologies will lead to her exports being more competitive, ceteris paribus. Foreign demand for its products will rise, leading to an increase in demand for its currency. Subsequently its currency will appreciate.

For example, an increase in demand for Singapore products in the UK due to its lower prices or superior quality would result in an increase in demand for S\$ from  $DD_{S$}$  to  $DD_{S$}$ ". This would result in an appreciation of the S\$ from S\$1 = £0.33 to S\$1 = £0.40 as shown in Fig 11.



#### b) Long-term capital flows to purchase Singapore assets

For example, demand for S\$ by foreigners who wish to invest in Singapore. This is in term dependent on:

Investment prospects

Long-term capital movements are influenced by investment prospects such as long-term expectations about profit opportunities in the other country, the strength of the currency in the long run, economic stability, and availability of necessary factors of production, infrastructure, and fiscal incentives. Long-term investments are mostly made in countries with the highest prospective yield after allowance has been made for political and other risks.

An increase in long-term investment by foreigners in a country increases the demand for the country's currency in the foreign exchange market and thus, its currency tends to appreciate.

#### c) Short-term capital flows

For example, demand from foreigners in search of high returns who want to buy Singapore's short-term securities such as treasury bills. The factors that affect short-term capital movements are:



#### Relative interest rates

International currency traders hold transaction balances which they lend out as short-term loans to gain interest income. They would prefer to extend loans to markets with the highest interest rates to maximise their returns. If a country's short-term interest rate rises above that of most other countries, the short-term capital will be attracted to that country because of better returns. As a result, the demand for the currency of that country will increase, causing the value of that country's currency to appreciate against other currencies.

#### Speculation (Expectations about currency movements)

If foreigners speculate that the currency will appreciate, they will rush to buy assets denominated in that currency. This will increase the demand for the currency in the forex market and lead to an appreciation of the currency.

Conversely, if they expect the currency to depreciate, they will rush to sell off their assets valued in that currency. This will increase the supply of the currency in the forex market and lead to a depreciation of the currency.

*Note:* Short-term capital movements are typically volatile in nature.

#### d) Foreign Government Expenditure in Home Country

Increase in expenditure by foreign governments and economic aid from abroad would increase the demand for the country's currency in the foreign exchange market. The home currency will tend to appreciate due to the increase in the demand for the currency in the foreign exchange market.

The demand for a currency is the sum of the demand for all the purposes listed above. The demand for any country's currency will be the aggregate demand of households, firms and governments from the rest of the world.



#### 3.6.4. Factors influencing the Supply of a Currency

Similarly, the supply of a country's currency will come from the holders of that currency who desire the goods, services and the long-term capital assets of foreign countries. For example, Singaporeans who want to buy British-made goods will supply S\$ in return for £.

#### a) Demand for British Goods and Services in Singapore

This could be due to tastes and preferences or depend on the inflation rate as explained under 'Factors that may affect the demand of S\$'.



When there is a higher inflation rate in a country relative to its trading partners, foreign goods and services become relatively cheaper to consumers in this country so they demand more foreign goods and services. In order to buy more foreign goods and services, these consumers need to sell their domestic currency to buy foreign currency in forex market. This will therefore increase supply of its currency in the foreign exchange market, shifting the supply curve of S\$ to the right from  $SS_{ss}$  to  $SS_{ss"}$  as shown in Fig 7.3.3d above, resulting in a depreciation of the S\$ from S\$1=£0.40 to S\$1=£0.33.

- b) Long-term capital outflows from Singapore to purchase British Assets
- c) Short-term capital outflows from Singapore into the UK
- d) Singapore government expenditure in the UK

The arguments for points b), c) and d) are the flip of those presented under the demand factors.

The supply of a currency is the sum of the supply for all the purposes listed above. The supply of any country's currency will be the aggregate supply of individuals, firms and government<del>s</del> from the country.

3.6.5. Summary of factors affecting the demand and supply of currencies

Demand for a currency	Supply of a currency
• Exports of goods and services	Imports of goods and services
Inflows of FDI	Outflows of FDI
Inflows of hot money	Outflows of hot money



The above explanations of how exchange rates are determined assumes that it is a free-floating exchange rate system. In reality, there are two other exchange rate systems, fixed exchange rate and a managed float system. In the latter two systems, central banks intervene in the foreign exchange market to influence the exchange rate. In the next section, we look at the exchange rate system that Singapore makes use of.

## 3.7. Managed Float System

- This is a system in which central banks allow the exchange rate to float in the free market within a pre-determined band but will intervene when the exchange rate exits the target band. In other words, the central bank may occasionally enter foreign exchange markets to influence exchange rates when the government feels that the free market exchange rate is undesirable.
- Most countries have gone off the fixed exchange rate system but they have nonetheless tried to keep certain elements of that system in place. They have occasionally engaged in what is called the 'dirty float' or management of flexible exchange rates.
- In a managed float system, the central bank intervenes in foreign exchange market to prevent undesirable or wide movements in the exchange rate by setting a band within which the exchange rate can freely move. Government intervention takes place only when the free market exchange rate moves beyond the stipulated band.
- Fig 13 shows a diagram on the demand for and supply of S\$. Like all countries on the managed float exchange rate system, the MAS does not intervene in the foreign exchange market to buy and sell S\$ unless the S\$ fluctuates outside the target bands.



## Fig 13: Determination of Exchange Rate in a Managed Float System

Let us say that demand for and supply of S\$ in the forex market against the USD is currently at DD<sub>S\$</sub> and SS<sub>S\$</sub> respectively. When the supply of S\$ increases from SS<sub>S\$</sub> to SS<sub>S\$"</sub>, the price of S\$ in US\$ falls to US\$0.70. This is outside the target band of US\$0.80 to US\$1.20. Hence, the Singapore central bank will intervene in the forex market by selling more US\$ to increase the



demand for S\$ to  $DD_{S\$"}$ . This will allow the S\$ to appreciate against the US\$ to US\$0.80 per S\$, which is within the target band.

# How does monetary policy centred on exchange rates achieve economic growth?

## 3.8. Use of Exchange Rate Policy to Achieve Economic Growth

The exchange rate policy is extremely useful especially to an external trade dependent country whose growth is export-driven.

Under the managed float system, the central bank can depreciate the currency to increase net exports. When currency depreciates, the price of exports in foreign currencies falls. This causes the demand for exports to increase and the export revenue (measured in domestic currency) will increase<sup>6</sup>. The price of imports in domestic currency increases. This causes the quantity demanded of imports to decrease. As a result, net exports will increase.

An increase in net exports leads to an increase in AD, ceteris paribus. Firms in the economy face increasing demand for their goods and services by foreigners and thus enjoy increase in total revenue which possibly increases profits. Due to greater profit potential, firms are encouraged to increase production. To raise production, the firms hire more factors of production including labour, thus reducing unemployment and make more factor payments which ultimately results in increase in real national income via the multiplier effect. Since GDP = C+I+G+(X-M), the effect of a depreciation is an increase in real GDP, and therefore achieving economic growth.

A basic philosophy underlying Singapore's exchange rate policy is to preserve the purchasing power of the Singapore dollar, to maintain confidence in the currency and preserve the value of workers' savings. A stable exchange rate would help to achieve price stability in Singapore and act as the basis for sustainable economic growth.

By taking a stance of gradual appreciation of the S\$, the MAS does not use the exchange rate policy as the primary tool for boosting growth. Instead, MAS's goal is to ensure price stability which would then form the basis for sustainable growth to be achieve.

Take a look at the infographic by The Business Times on page 38 to see why.

<sup>&</sup>lt;sup>6</sup> When the price of exports in foreign currency falls, the quantity demanded of exports by foreigners would increase and the resulting change in the total expenditure (measured in foreign currency) would depend on the value of PEDx. However, the total expenditure (measured in domestic currency) would definitely increase as the price in domestic currency has not changed but the quantity demanded at the same price level has increased.



# In what circumstances is the use of exchange rates better than the use of other macroeconomic policies?

## 3.9. Limitations of Exchange Rate Policy for Economic Growth

## 3.9.1. Relative Exchange Rate

Even if a country depreciates its currency for instance to achieve economic growth, its strategy will prove to be futile if other countries are also depreciating their currencies.

## 3.9.2. Economic Conditions

If other countries experience recession or there is a world-wide recession, then depreciation may not be that effective in achieving economic growth and full employment. This is because although the foreign price of exports may decrease due to the depreciation, the exports may still be relatively less affordable in foreign countries due to a fall in the real national income levels which usually dampen demand for imports. Hence, depreciation may not significantly increase exports.

## 3.9.3. Imported cost-push inflation

A depreciation of the domestic currency would also cause a decrease in the SRAS especially if a significant portion of a country's factors of production are imported. This is because the depreciation of the domestic currency would lead to imported raw materials and intermediate products being more expensive in terms of the domestic currency. When this happens, the cost of production of final goods and services will increase, and the SRAS will decrease. As such, the general price level is likely to increase, creating cost-push inflation.

Singapore's small size and the lack of natural resources have resulted in Singapore being dependent on imports for both factors of productions and consumers goods. In fact, there is a high import content in the output of Singapore. Thus, a depreciation of the Singapore dollar (SGD) may result in imported cost-push inflation.

The infographic titled "Poor Exchange" by the Business Times in the following page summarises some limitations of Singapore's monetary policy and proposed alternative policies to complement it.





## Poor exchange

On Oct 14, the Monetary Authority of Singapore (MAS) ignored calls to aggressively weaken the Singapore dollar to make exports cheaper and boost growth. This is especially since inflation is not a major issue now.

The Business Times looks at why a weaker Singapore dollar may not actually benefit the economy. BY KELLY TAY



In many ways, a weaker Singapore dollar is a double-edged sword – positive effects may accrue, but the negative effects loom large too.

#### With a weaker Singapore dollar:

Singapore's exports become cheaper, which can serve to boost demand.



But Singapore's imports simultaneously become more expensive, which means higher prices for importers. In 2014, exports made up 52.8% of total merchandise trade, while imports constituted 47.2%. Exports and imports stood at \$\$\$18.9 billion and \$\$463.8 billion respectively.



Because Singapore imports almost everything it uses, raw materials become more expensive. Compounded by higher labour costs, the country's total cost base goes up.



 Higher imported inflation also eats into household incomes, which in turn impinges on domestic demand. Ultimately, that adversely affects growth.



Because interest rates rise as expectations of a weaker Singapore dollar increase, businesses and households take a hit from higher borrowing costs.

**On top of this,** a weaker Singapore dollar may not provide much boost to exports either – especially in the current climate of feeble external demand amid a sluggish global economy. With other countries devaluing their currencies aggressively, Singapore's exports still seem expensive, at least comparatively.



So to expect MAS to weaken the Singapore dollar just because growth is below expectations is to miss the larger point:



**Growth** must therefore come from other, more hard-earned ways:





Technological advancements



Higher productivity

BT Graphics: Kelly Tay



# What policy tools are available to a government to influence the aggregate supply?

## 4. Supply-side Policies

Supply-side policies are implemented when the government attempts to increase the level of short run aggregate supply (SRAS) and/or long run aggregate supply (LRAS).

Hence, policies that focus on these supply-side factors which increase the aggregate supply (AS), are known as supply-side policies. These policies aim to lower cost of production and achieve potential growth.

If an economy is to achieve sustained economic growth over the longer term, there must be continual potential growth. This means that there must be a continual rightward shift of the LRAS. The long-term growth of an economy is determined by supply-side factors such as advancement of technology, capital accumulation and the quantity and quality of resources including labour.

Supply-side policies can be categorised by mode of delivery:



They can also be categorised by their effects on the AS curve:





# How do market-oriented supply-side policies achieve economic growth?

## 4.1. Market-Oriented Supply-side Policies

These are policies that increase the aggregate supply by freeing up the market to enable or encourage private enterprise. Market oriented policies aim at encouraging market forces to work freely as it is believed that market forces may result in a more efficient allocation of resources. Hence, market oriented supply-side policies encourage and reward private enterprise and initiative, and reduce the role of government. They put more reliance on market forces and competition and less on government regulation. This can be achieved through:

## 4.1.1. Encouraging competition

If competition is encouraged, firms will have to produce at a lower or the lowest unit costs and offer the lowest price in order to remain competitive or profitable. This will lead to less inefficiency and an increase in SRAS.

## a) Privatisation

Privatisation involves the transfer of government-owned enterprises to the private sector. Privatisation can lead to increased efficiency as privately-run firms, being profit-motivated, would usually be more cost conscious. Reduction in cost, ceteris paribus, will translate directly to higher profits. Hence, a more efficient use of resources by the private firms rather than the government sector suggests a fall in cost of production, increasing the SRAS.

## b) Deregulation

Deregulation involves the liberalisation of markets to promote greater competition in the markets. This may be practised through anti-monopoly regulation and through reduction or even elimination of protectionist measures to reduce anti-competitive practices in order to make the markets more competitive. In the face of additional competition, firms are forced to be more efficient for survival. This reduces unit costs, boosting short run aggregate supply. Consumers may also benefit from lower prices.

## c) Reducing government expenditure as a proportion of GDP

A reduction in the size of public sector will allow private investment to increase with no overall increase in aggregate demand if the crowding-out effect was present. Hence, this allows greater investment without any demand-pull inflation. Given the higher investment expenditure in an economy, the long run aggregate supply will increase.

## d) Reduction in red-tape (bureaucracy) that hinders investment and risk taking activities

This will help to lower costs and therefore increase short run aggregate supply. Also, since it increases the marginal efficiency of investment (returns to investment are higher if the costs of investment are lower), LRAS is increased through an increase in investment and thus quantity of capital.



## 4.1.2. Labour Market Reforms

The following labour market reform strategies will mean that demand for and supply of labour will be free of constraints and firms can pay the free market price for labour. Thus costs are reduced and short-run aggregate supply increases.

- Removing trade union power to encourage greater flexibility in wages: this might possibly lower wage costs (increase SRAS) which in turn lead to higher profits that create more funds for investment (increase LRAS).
- Removing the minimum wage or other welfare benefits to the workers: this encourages selfreliance and would reduce voluntary unemployment. In other words, this encourages more people to work. If the minimum wage was set above the free market equilibrium wage and is now removed, this will lower wage costs and increase SRAS.
- Abolishing labour immigration laws in order to allow more inward flow of labour into the country to augment the local labour force. An increase in supply of labour will push down equilibrium wage, lowering the wage costs of producers, increasing SRAS.
- If the removal of minimum wage or the abolishment of the labour immigration laws successfully encourages more people to work in the country, there might be an increase in the labour force. Due to the increase in the quantity of labour available, there will be an increase in the productive capacity. Hence, there would be an increase in long run aggregate supply.

#### 4.1.3. Incentive-related policies

#### a) Reduce income tax

If income tax is reduced, ceteris paribus, people would have greater incentive to work harder as they are able to receive higher disposable income.

The reduction in income tax would also allow people to save more. Higher savings provide necessary funds for banks and financial institutions to lend to investors which will therefore increase aggregate supply in the long run. Note that this is an example of fiscal policy (taxation) having supply-side effects.

#### b) Reduce corporate income tax and other business tax

If corporate income tax is reduced, firms will have greater incentive to invest due to higher posttax profits. As a result, the long run aggregate supply will increase when there is higher investment expenditure in the economy.

If corporate income tax is reduced, firms may be willing to charge lower prices in order to compete. This will increase the SRAS.

#### c) Cuts in social and welfare programmes

Cutting welfare payments like unemployment benefits and welfare payments provides incentive to the unemployed worker to seek employment as soon as possible. This reduces voluntary unemployment and reduces the time that a worker remains unemployed, causing a rightward shift in the long run aggregate supply curve.



## 4.2. Evaluation of Market Oriented Supply-side Policies

## 4.2.1. Advantages of Market Oriented Supply-side Policies

Market oriented supply-side policies not only increase aggregate supply (AS) and hence help the government to achieve macroeconomic aims such as sustainable economic growth, there are also other advantages such as:

- They are generally cheap and easy to implement;
- Short implementation lag;
- Improved allocative efficiency (e.g., privatisation often reduces costs as government-owned firms are generally inefficient); and
- Leads to less government spending which reduces strain on the government budget (especially privatisation and reduced welfare benefits for workers).

## 4.2.2. Disadvantages of Market-Oriented Supply-side Policies

- Often seen as unethical e.g. when reducing power of trade unions, removal of minimum wage. They may thus be politically infeasible.
- May lead to greater overproduction in cases of negative externalities owing to less government control.
- May lead to higher unemployment rate if the power of trade unions is reduced, more people can be retrenched by the firms, when privatised firms aim to maximise profits by reducing costs.

# How do interventionist supply-side policies achieve economic growth?

## 4.3. Interventionist Supply-side Policies

Interventionist supply-side policies are policies that increase the aggregate supply by government intervention to counteract the deficiencies of the market. In other words, these policies require government to intervene in the market directly. This includes:

## 4.3.1. Investment in human capital by providing training and education

A healthier and highly skilled workforce would result in higher productivity i.e. more output could be produced with the same amount of resources. This will then lead to an increase in long run aggregate supply.

Productivity measures output per given unit of inputs.

## 4.3.2. Investment in research and development (R&D)

The government may carry out or sponsor R&D activities through grants or subsidies.

The government could also indirectly encourage firms to embark on R&D by ensuring that the financial institutions are functioning efficiently to allow firms to borrow funds for R&D. Assuming such R&D projects turn out to be successful, more output could be produced with



the same amount of resources, leading to a rise in long run aggregate supply. If R&D leads to lower cost of production, this can increase SRAS.

## 4.3.3. Investment in infrastructure by improving roads and communication lines

Better transport infrastructure will cut down unnecessary delays due to accidents or damaged roads. It will also reduce the wear and tear of vehicles. Building of new expressways will allow quicker transfer of output to consumers. As such, firms in general will be able to cut down on its cost of production such as petrol and labour cost. Aggregate supply will thus rise.

Better communication lines will also allow more information to be transmitted. High-speed data transfer allows long distance video conferencing among workers of different plants. This will remove the need for workers to meet at one location, thereby saving the firm cost in terms of travelling and time. Aggregate supply will thus rise.

## 4.3.4. Encouragement of mergers and other forms of industrial reorganisation

Firms that merge especially with those from the same industry can enjoy efficiency gains if there are substantial internal economies of scale to be reaped. For example, the merging of POSB and DBS in Singapore had led to the removal of duplication of facilities such as ATMs and even branches across the country. The cost savings enjoyed by firms could lead to an increase in short run aggregate supply.

## 4.4. Evaluation of Interventionist Supply-side Policies

## 4.4.1. Advantages of Interventionist Supply-side Policies

- Subsidies which aim to increase aggregate supply in the long run could also help to protect infant or sunset industries from foreign competition and promote employment in the short run.
- Such policies often promote the consumption and production of goods and services that generate positive externalities (e.g. healthcare, research and development and improved infrastructure). For example, a new toolkit to detect virus can cut down the cost for healthcare firms. Such invention will also generate positive externalities as the general public will then be in contact with potential virus-infected patients over a shorter period of time.

## 4.4.2. Disadvantages of Interventionist Supply-side Policies

## a) Could lead to budget deficit

The increase in government expenditure on the investment in human capital, R&D and infrastructure might cause an increase in budget deficit, assuming tax revenue remains unchanged.

## b) Long time lag

Training labour requires several months before workers are sufficiently trained and education policies may take years before students graduate and work to increase the productive capacity.



## 4.5. Use of Supply-Side Policies to Achieve Sustained Economic Growth

To achieve *sustained economic growth* requires both actual and potential growth. To achieve sustained growth over the longer term, there must be continual potential growth. This in turn depends on three major factors: growth in quantity of factors of production, quality of factors of production and technological progress. Understanding this will allow the government to implement appropriate supply side policies.

## 4.5.1. Raising Rate of Capital Formation by Promoting Savings

Capital accumulation/formation is a key determinant of growth. Capital accumulation occurs when firms invest in capital goods, which in turn can increase productivity and productive capacity. Capital goods can also help to achieve a green and sustainable living environment.

To fuel such investment, firms must have access to credit or loans. The availability of credit or loans depends on the savings rate in the country. To ensure sufficient supply of loanable funds, the government can raise savings by reducing income tax. The lower income tax rate would incentivise households to save more.

In addition, increase in financial literacy rate across all ages also helps to boost amount of loanable funds for investors. Through educational workshops and talks, it is hoped that consumers would become more prudent in handling their finances and increase their savings.

A steady supply of credit allows a country to finance capital formation. The increase in capital accumulation or investment in capital goods can lead to actual growth as more resources are being utilised to produce more of the capital goods being demanded. In the long run, aggregate supply will also increase, leading to potential growth in the country. Sustained growth is achieved.

## Limitation

For developing countries (refer to Appendix 2) with low incomes, the population may have low savings. Hence, for such countries, other market oriented supply-side policies that encourage freer movement of capital from overseas might be more effective. This can be achieved by a more targeted or concerted effort in encouraging FDIs into the country. The influx of foreign capital through FDIs may help the country to generate greater capital formation as well as technological transfers, which in turn help to increase long-run aggregate supply.

## 4.5.2. Reducing Government Expenditure, Release More Resources to the Private Sector

Take for example, in the UK, tighter budgets were imposed on various government departments and local authorities. This restriction forced government agencies to become more efficient in using resources.

Grants and subsidies given to government agencies were also reduced. Instead, more were given to the private firms. Being profit-motivated, private firms would have more incentive to cut costs and improve productivity. SRAS will increase due to a fall in the unit cost of production. With greater productivity, LRAS will increase due to an increase in full employment level of output. Sustained growth is achieved.



#### Limitation

However, these policies are not without problems. In some government sectors, it was found to be much easier to cut long-term developmental capital expenditure than recurrent expenditure (e.g. wages) in trying to release resources to the private sector. This can lead to a decline in construction and improvement in road networks and schools, etc. As a result, due to the fall in the expenditure on infrastructure, which is a form of capital, potential growth can be hindered.

#### 4.5.3. Reducing taxes to raise work incentive

Supply-side advocates argue that high taxes discourage work. Hence, one way to encourage the labour force to increase their propensity to work is to reduce personal income tax rates and shift the emphasis to taxes on consumption. This would then encourage more work as the disposable income would now be higher, hence offering higher standard of living to income earners.

Due to the greater work incentive brought about by the lower personal income tax rate, workers are more willing to put in longer hours to earn the extra income. This will then lead to an increase in long-run aggregate supply, thereby achieving potential growth. During the 1980s, the basic rate of income tax was reduced from 30% to 25% in the UK. Similarly, the marginal tax rate for the top income bracket was reduced from 55% in 1980 to 20% in 2007. It has been increased to more than 40% from 2016 onwards.

#### Limitation

A lower personal income tax rate may be ineffective in achieving potential growth through an increase in quantity of labour because a worker can now work fewer hours and still maintain his current standard of living. That is to say, the individual supply curve of labour may be 'backward bending'.

Suppose a worker can choose to work 8 hours a day and earn a monthly salary of \$2,000 or 6 hours a day and earn \$\$1,500 a month. The prevailing tax rate is 40% and he decided that he would need a disposable income of at least \$1,200 to make ends meet. Hence, he works 8 hours a day and earns \$2,000 a month. He pays income tax of \$800 (40%) leaving him with a disposable income of \$1,200.

Suppose the government now reduces the income tax to 20%. He might now choose to work 6 hours a day and earn \$1,500 a month, paying 20% tax, which leaves him a disposable income of \$1,200 – the same as before!

Hence, the lowering of income tax in this instance has led to fewer man hours offered by that worker.

#### 4.5.4. Reducing Welfare Benefits

Some economists claim that a major cause of unemployment is the small difference between the welfare benefits of the unemployed and the take-home pay of the employed. This causes voluntary unemployment. Therefore, a solution to this problem would be to reduce/remove unemployment benefits.



Instead of welfare benefits for low-income households, which can breed a dependence entitlement mentality, the Singapore government introduced a Workfare Income Supplement Scheme instead. Under this scheme, low-income workers have to be employed to enjoy the benefits. For example, the government gives up to \$4,000 a year to those aged 60 and above as a top up for their salaries and helps them save for their retirement. Singapore's method offers incentive to work. With greater incentive to work, more Singaporeans will enter the labour force and potential growth can be achieved.

## 4.5.5. Promote Education and Training

Spending on education and training is a form of investment in human capital. An economy needs specialised and trained labour to operate sophisticated machinery that would create high value-added output.

Furthermore, trained or skilled labour is more efficient and productive than untrained or unskilled labour. As such, this may not only result in a fall in cost of production, and in turn an increase in the SRAS but also an overall increase in productive capacity which increases the LRAS, promoting potential growth.

In addition, targeted education and skills-specific training can increase workers' capacity towards improving export competitiveness. E.g. access to skilled labour can diversify a country's export and move up the quality ladder.

## 4.5.6. Promote Factor Mobility

Due to constant economic changes which can cause some industries to decline while others expand, resources, especially labour, in a country will need to be reallocated from the declining sectors to those that are expanding. Such reallocation of resources is needed to generate economic growth.

To reallocate these labour resources, labour mobility must be enhanced. Benefits may be offered to make labour and capital more mobile e.g. grants given to firms to provide training programs to workers so that skill acquisition can take place. This can increase the occupational mobility of labour and increase the productivity of the economy. Long-run aggregate supply curve would increase, and hence potential growth can be achieved.

## Limitation

However, many workers are unable to work in expanding industries or embark on a mid-career switch. As a result, factor immobility may cause economic growth to slow down.

The judicious use of supply-side policies is likely to help a country achieve sustained economic growth. However, it is important that the government also complements the supply-side policies with the necessary demand-side policies to ensure that aggregate demand rise in tandem with the rise in aggregate supply in order to reap sustained growth in the long run.

## Check list

Explain the government macroeconomic objective in relation to achieving a sustainable (and inclusive)	
economic growth.	

Understand the causes of undesirable rates of economic growth.

Explain economic consequences of undesirable rates of economic growth from perspectives of economic agents.

Explain the objectives of macroeconomic policies.

Explain the different types, aims and instruments of these policies.

Use AD/AS analysis to explain the impact of Analyse how fiscal, monetary, and supply-side policies on the economy in general as well as impact on economic agents can be used to resolve macroeconomic problems using the AD/AS model.

### **APPENDIX 1**

### How do Central Banks Inject Money into the Economy?

*Central banks* use several different methods to increase (or decrease) the amount of money in the banking system. These actions are referred to as *monetary policy*. While the *Federal Reserve Board* (the Fed, the Central Bank of USA)) could print paper currency at its discretion in an effort to increase the amount of money in the economy, this is not the measure used. Here are three methods the Fed uses in order to inject (or withdraw) money from the economy:

The Fed can influence the money supply by modifying *reserve requirements*, which is the amount of funds banks must hold against deposits in bank accounts. By lowering the reserve requirements, banks are able loan more money, which increases the overall supply of money in the economy. Conversely, by raising the banks' reserve requirements, the Fed is able to decrease the size of the *money supply*.

The Fed can also alter the money supply by changing short-term interest rates. By lowering (or raising) the *discount* rate that banks pay on short-term loans from the Federal Reserve Bank, the Fed is able to effectively increase (or decrease) the liquidity of money. Lower rates increase the money supply and boost economic activity; however, decreases in interest rates fuel *inflation*, so the Fed must be careful not to lower interest rates too much for too long.

Finally, the Fed can affect the money supply by conducting *open market operations*, which affects the *federal funds rate*. In open operations, the Fed buys and sells government securities in the open market. If the Fed wants to increase the money supply, it buys government bonds. This supplies the securities dealers who sell the bonds with cash, increasing the overall money supply. Conversely, if the Fed wants to decrease the money supply, it sells bonds from its account, thus taking in cash and removing money from the economic system.

http://www.investopedia.com/ask/answers/07/central-banks.asp

## **APPENDIX 2**

## **Characteristics of Developing Countries**

Economic growth is a big issue to most nations, especially so for developing countries. It represents a way out of the poverty trap for them. Hence, knowing the characteristics of the developing countries will help economists in prescribing solutions for them to grow.

#### Substantial Dependence on Agriculture

Agriculture takes up a large sector of most developing economies as compared to the more developed ones. Most of the labour in the country is channelled to the agriculture sector. Agricultural productivity is low as it is often characterised by relatively primitive technology and poor resource organisations. Also, the prices that the primary agricultural goods fetch are usually low which explains the low income of the farmers. The amount of income the farmers receive is unstable as the harvests are usually dependent on weather conditions.

Note: The low price elasticities of demand and supply tend to widen the price fluctuations.

## Low Levels of Labour Productivity

Throughout the developing world, levels of labour productivity (output per worker) are lower compared to developed countries. Such low labour productivity can be explained by

- severe lack of physical capital;
- poor workers' health due to poor diet, inadequate food and low standard of hygiene;
- ✤ low levels of education and training;
- low level of technology lack of/low technology machinery and production methods.

## **Underutilisation of Labour**

There is underutilisation of labour in 2 forms:

- high level of <u>underemployment</u> (those who are working less than they could) e.g. due to the seasonal nature of farming;
- high level of <u>unemployment</u> (those who are able and eager to work for whom no suitable jobs are available) e.g. due to the lack of jobs creation in the manufacturing/service sectors.

#### High Rates of Population Growth

It is not uncommon for developing countries to experience an annual growth rate in population of 3%. At this rate, the population can double itself in 24 years. Such alarming population growth rate imposes a strain and threat to the scarce resources (e.g. food and potable water) in the economy. Many developing countries have population growth rates that are as large as their real income growth rates. As a result, there are barely any changes in the standard of living of the citizens.

#### Lack of Dependable Infrastructure

Economic infrastructure refers to capital accumulation embodied in transportation, communications, public utilities, financial institutions, and public services like health and educational services. Developing countries usually have inadequate infrastructure which is necessary for development. Contrast this with a developed country you know of – how has its improvement in infrastructure helped it develop over the past three decades?

#### Inefficient and Corrupt Government

The role of government is crucial in economic development as it sets the direction through its economic policies to gear a country towards economic growth. In general, corrupt governments prevalent in many of the developing countries hinder economic development in the country. This is because the corrupt government officials are more likely to engage in rent-seeking rather than focusing their efforts on promoting growth in the economy. Even though many of the developed nations provide funds (foreign aid) to facilitate the development of the developing countries, it takes a prudent, wise and non-corrupt government to use the funds wisely in order to promote economic development in the nation.