



ECONOMICS

RAFFLES INSTITUTION

YEAR 6 H2 ECONOMICS 2023

MACROECONOMIC AIMS, ISSUES & POLICIES

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This series of lectures provides an insight into the macroeconomy. Part 1 examines the macroeconomic aims governments have relating to economic growth, price stability, employment, and balance of payments, and particularly the causes and consequences of not attaining these macroeconomic aims. Part 2 provides a deeper insight into various macroeconomic policies that are used by governments to achieve macroeconomic objectives. To achieve the macroeconomic objectives relating to internal and external stability of the country, governments may put in place policy measures to influence economic conditions, such as the level of aggregate demand for the economy's goods and services and the productive capacity of the economy. However, these policies have its limitations.

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(References in bold are recommended resources for the A Level student.)

At the end of this lecture series, candidates should be able to:

- Elaborate on the aims that governments have with respect to achieving economic growth, price stability, full employment, and a favourable balance of trade.
- Explain the causes and consequences of:
 - Undesirable economic growth, including excessive, weak and negative economic growth
 - Unemployment, including demand-deficient/cyclical, structural and frictional unemployment
 - A lack of price stability, including inflation and deflation
 - Balance of Trade disequilibrium
- Explain how the failure to achieve macroeconomic aims affects governments, producers, and consumers
- Recognise certain trade-offs governments face in the pursuit of specific macroeconomic aims

INTRODUCTION

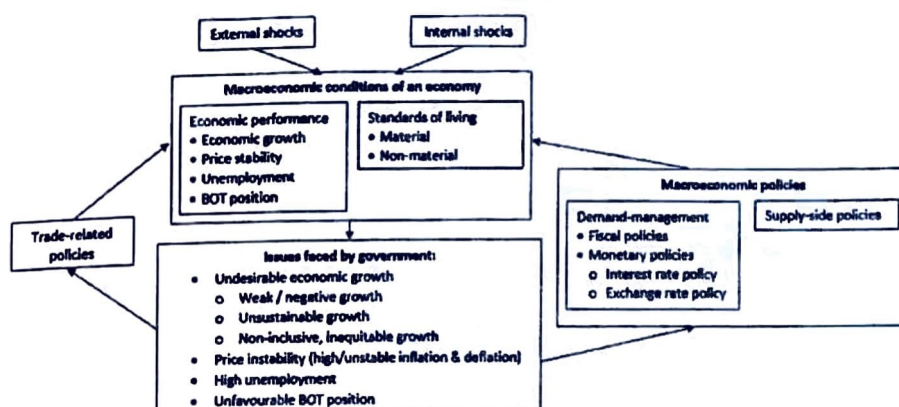
Why do economies sometimes grow rapidly, while at other times face recessions? Why do some economies continue to grow while others stagnate? Why do people sometimes find themselves unemployed? Why do economies experience rising prices, and is that a bad thing? Why do exchange rates change and what will be the impact of such changes? These macroeconomic issues affect all countries. This set of lecture notes will delve deeper into these issues, and provide an insight on a government's macroeconomic objectives, and the causes and consequences of not achieving these aims.

Recall:

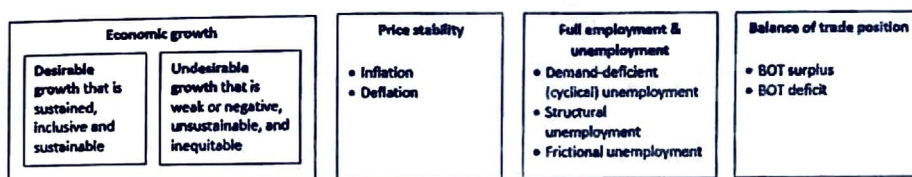
A government has 4 main macroeconomic objectives, namely, sustained, sustainable and inclusive economic growth, full employment, price stability and a favourable balance of trade position.

AN OVERVIEW

The National and International Economy



Macroeconomic Aims and Issues



1 ECONOMIC GROWTH

Economic growth refers to the increase in the real value of the goods and services produced by an economy over time. Governments aim to achieve sustained, sustainable, and inclusive economic growth to better the standards of living around the world.

1.1 DEFINITION & DETERMINANTS OF ECONOMIC GROWTH

1.1.1 Sustained Economic Growth

To achieve sustained economic growth, it is important to understand what affects the level of an economy's output and, in turn, what causes it to rise and fall. There are two aspects to economic growth, namely, actual growth and potential growth. For an economy to achieve sustained economic growth, both actual and potential growth need to take place. We can analyse sustained economic growth using the AD/AS model.

Actual growth is the increase in national output produced in an economy over a given period of time, commonly measured by the percentage annual increase in real GDP. Actual growth can arise from increases in both aggregate demand and aggregate supply, specifically due to a fall in costs of production.

Key Point:

In the short term, actual growth can be caused by:

- Increase in AD
- Increase in AS due to fall in COP

Increases in aggregate demand (AD) due to a rise in any of its components result in actual growth (i.e., increases in consumption expenditure (C), investment (I), government spending (G) and net exports (NX)). For instance, when consumers become more confident about the future of our economy, consumption expenditure would increase among households. As a result, there will be shortages which stimulates firms to increase output in the economy, leading to actual growth. Diagrammatically, this is represented by a rightward shift of the AD curve from AD_1 to AD_2 as illustrated in Figure 1. Assuming spare capacity, real national income will increase by a multiple via the multiplier effect from Y_1 to Y_2 , indicating actual growth.

Refer to 'How the Macroeconomy Works' lecture notes for factors affecting C, I, G and NX.

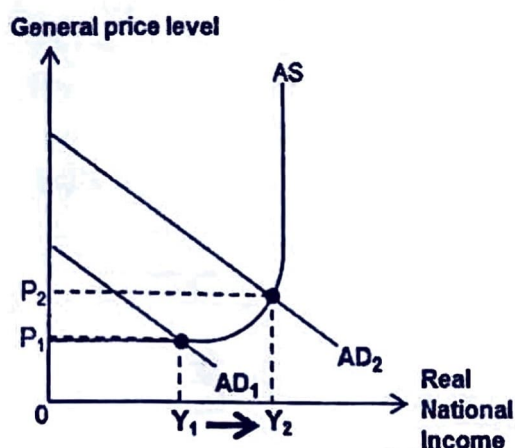


Figure 1: Actual growth due to an increase in AD

An increase in aggregate supply (AS), specifically due to a fall in costs of production, also results in actual growth and rises in national output, as a fall in costs of production encourages firms to expand output at every price level. Diagrammatically, this is represented by a downward shift of the AS curve from AS_1 to AS_2 as shown in Figure 2 where real national income increases from Y_1 to Y_2 , indicating actual growth.

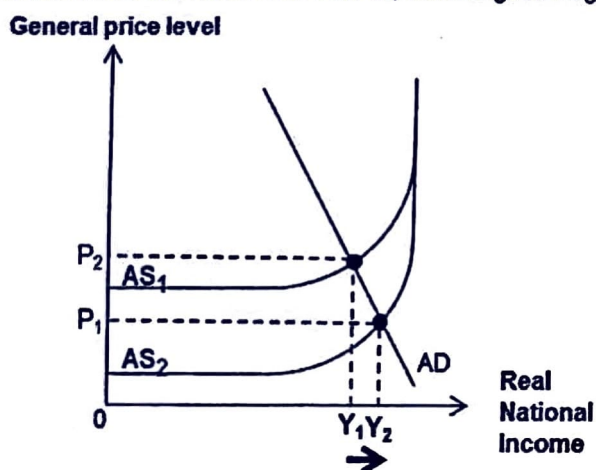


Figure 2: Actual growth due to an increase in AS

Besides using the AD/AS model, it is also possible to illustrate actual growth using a movement of a point outwards from within the Production Possibility Curve (PPC) to closer to on the PPC curve as shown in Figure 3. The economy produces more capital and consumer goods when it moves from point A within the PPC to point B on the PPC. (Note: Most of the time, AD/AS model is the preferred framework for analysing economic growth, unless otherwise required by the given question).

Recall that a PPC shows all the maximum attainable combinations of two goods that a country can produce within a specified period of time with all its resources fully and efficiently employed, at a given state of technology.

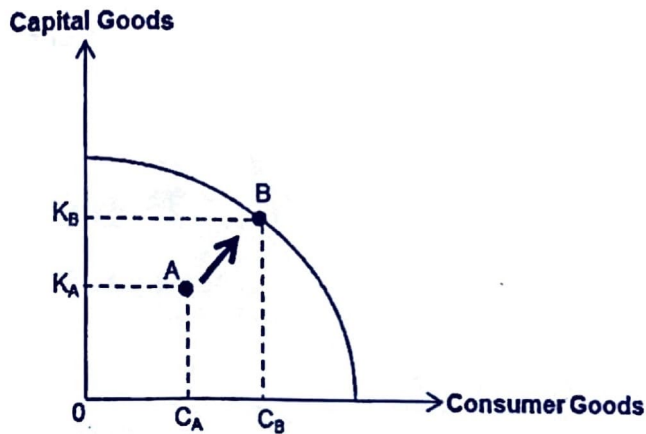


Figure 3: Actual growth from within the PPC to a point on the PPC

Potential growth is the long run expansion of a country's productive potential. It reflects the increase in the capacity of the economy to produce, i.e., the maximum output that the economy can achieve when all its scarce resources are fully and efficiently employed.

Note: In the long run, potential economic growth requires an increase in the productive capacity of the economy.

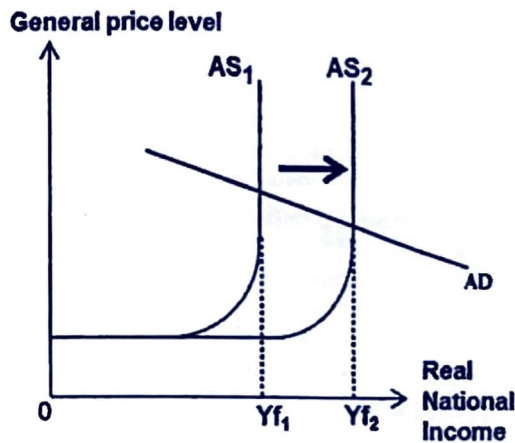


Figure 4: Potential growth due to an increase in AS

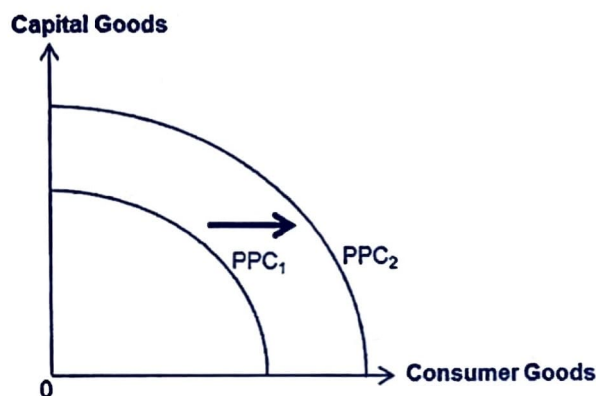


Figure 5: Potential growth illustrated by an outward shift of the PPC

Potential growth results from an increase in aggregate supply (AS) arising from increases or improvements in a country's natural and capital (both physical and human) resources as well as its state of technology. Diagrammatically, potential growth can be represented by a rightward shift of the AS curve from AS_1 to AS_2 as illustrated in Figure 4

Refer to 'How the Macroeconomy Works' lecture notes for factors affecting AS.

where the full employment real output level increases from Y_{f1} to Y_{f2} , reflecting potential economic growth. We can also illustrate potential growth using the PPC model as an outward shift of the PPC curve from PPC_1 to PPC_2 as shown in Figure 5.

For there to be sustained economic growth, actual growth must be accompanied by potential growth. A rapid rise in aggregate demand alone is not enough to ensure a continuing high level of growth over a sustained period of time. Without an expansion of aggregate supply and potential output, rises in actual output must eventually come to an end once all spare capacity has been used up. As shown in Figure 6, once full employment of labour and other resources is reached at Y_{f1} where AS_1 meets AD_1 , any further increases in AD from AD_1 to AD_2 will only increase prices but not actual output. Thus, at the full employment level, the rate of growth of actual output will be restricted to the rate of growth of potential output, or potential economic growth.

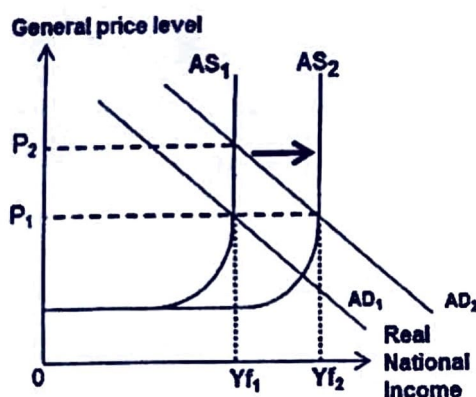


Figure 6: Sustained Economic Growth

Sustained economic growth can only be achieved when both actual and potential outputs are expanding, as shown by the rightward shifts of both the AD and AS curves in Figure 6. Real national income increases from Y_{f1} to Y_{f2} when the increase in AD from AD_1 to AD_2 is supported by an increase in the country's aggregate supply from AS_1 to AS_2 .

Section Summary

- Economic growth refers to an increase in the production of goods and services in an economy over time.
- Economic growth can be brought about by an increase in aggregate demand and an increase in aggregate supply.
- Sustained economic growth requires both actual and potential growth in an economy.



EXAM TIPS: Most of the time, you should explain the term 'Economic Growth' to reflect both actual and potential economic growth, unless otherwise specified in the given question or hinted in given context.

1.1.2 Inclusive Economic Growth

Inclusive growth indicates a rate of growth that is sustained over a period of time, is broad-based across economic sectors, and creates productive employment opportunities for the majority of the country's population. To achieve this, the economy must take income distribution into consideration and ensure that any growth does not lead to worsening income and wealth inequality.

Empirical evidence shows that as an economy grows and develops, it would often face challenges in achieving inclusive growth because the fruits of growth may not be equitably

Full employment real output level is the production level when all available resources are used efficiently.



Singapore's economic growth forecast to slow in 2023 to 0.5% to 2.5% amid global uncertainties

Key Ideas:

Actual growth can be measured by the percentage annual increase in national output produced over a period of time.

Potential growth can be estimated by the annual change in a country's potential level of national output.

Inclusive growth refers to economic growth that is distributed fairly across every section of society and creates opportunities for all.

distributed. As a result, the government plays a critical role in driving more inclusive and equitable growth in an economy. [Refer to Section 1.3.4 for more details.]

1.1.3 Sustainable Economic Growth and Development

Sustainable growth involves a rate of growth that can be maintained without creating other significant economic problems such as depleted resources and environmental problems, particularly for future generations. It also implies a positive and stable rate of growth over an extended period of time.

According to the World Bank, over the past two decades, economic growth raised incomes for many, but too often at the expense of the environment and poorer communities. Market, policy, and institutional failures have contributed to irresponsible, inefficient, and wasteful resource usage, without considering the true costs of environmental degradation and resource depletion. To combat unsustainable practices, governments and organisations around the world are now putting in place measures to achieve a more sustainable future. [Refer to Section 1.3.3 for more details.]

Note: there is a difference between sustainable growth versus sustained growth. The latter simply refers to increase in national output which is sustained by increases in both actual and potential growth.

1.2 BENEFITS AND COSTS OF ECONOMIC GROWTH

Economic growth, commonly measured by increases in real GDP levels, is an important macroeconomic goal of any economy because stable and healthy growth brings about multiple benefits to the society. However, there are also possible costs to an economy if the growth is persistently sharp and strong.

To analyse the benefits and costs of growth, we can examine the effects on (1) the current and future material and non-material standards of living, (2) some social and environmental goals of the economy such as inclusivity and sustainability, and (3) the other macroeconomic goals such as employment and inflation. These have direct impact on the different economic agents, namely, the households, firms, and the government in the society.

1.2.1 Benefits from Economic Growth

The benefits of stable and positive long term healthy growth include higher material and non-material standards of living, greater capacity for income redistribution and positive impacts on other macroeconomic goals such as a lower unemployment rate and a lower and more stable inflation rate.

a. Higher current and future material and non-material standards of living

Actual growth can lead to higher current material standard of living. When real GDP increases with economic growth, assuming population size remains unchanged, residents, on average, will have more purchasing power due to the rise in real GDP per capita. Since more final goods and services are produced and made available for consumption to the average individual in the current period, material welfare improves. Research has shown that a 3% per annum growth in real GDP per capita doubles material well-being in approximately 25 years. Growth thus provides an escape mechanism from poverty for those who share the fruits of the growth.

Actual growth can also increase future material standard of living by stimulating investments and potential growth. As national income increases, absolute savings will increase because higher income induces higher savings. There will thus be an increase in the supply of loanable funds in the credit market. In the long run, the increase in loanable funds will cause interest rates and hence borrowing costs to fall, *ceteris paribus*. Stable and healthy growth also improves business confidence. Both the decrease in interest rates and improved business confidence will provide greater incentive for firms to invest. The higher capital expenditure allows the economy to expand its potential productive capacity, leading to potential growth. Sustained growth is thus achieved,

The increase in potential growth can also lead to reduced inflationary pressures, leading to more stable inflation rate. This will be elaborated in the later section on 'Inflation'.

helping to achieve higher current and future material standard of living for the residents of the economy.

Moreover, actual growth can lead to improvements in non-material standard of living, which refers to the qualitative aspects of standard of living such as health, education, leisure, and environment. For example, with higher incomes, people can afford better quality healthcare products and services, allowing for an increase in life expectancy and a fall in infant mortality rate. People are more able to take "time off for education, reflection, and self-fulfilment" (M Roberts). As the society gets richer, it will have higher capacity to care for the environment as well as those less fortunate in the society.

b. Decrease in demand-deficient (or cyclical) unemployment

Economic growth helps to reduce demand-deficient unemployment (also called cyclical unemployment) by creating jobs. With growth, more goods and services are being demanded and produced, leading to higher induced demand for labour. As more labour are hired, demand-deficient (or cyclical) unemployment is reduced. This is significant because unemployment can be a major source of social problems such as crime, alienation and discontent. *[Note that economic growth cannot tackle all types of unemployment. Structural unemployment, arising from a mismatch of skills, can still exist despite rapid growth.]*

More on demand-deficient (cyclical) and structural unemployment in the next section on 'Unemployment'.

c. Higher capacity for redistributing income and helping the poor

A rapidly growing economy can afford to be more generous to the disadvantaged. The enlarging of the nation's economic pie enables everyone to become richer and have more, including the poor. The rise in income due to higher growth brings about extra tax revenues, enabling the government to spend more on transfer payments and subsidies to alleviate poverty and ensure social mobility.

1.2.2 Costs of Economic Growth

There are also potential costs of economic growth. Depending on how growth is achieved, it may lead to problems such as faster environmental degradation and resource depletion as well as a quickened pace of life that leads to stress-related health issues. Also, depending on the state of the economy, persistent increases in GDP might lead to other macroeconomic problems such as high inflation.

a. Overheating economy and demand-pull inflation

The attainment of economic growth can result in trade-offs with other macroeconomic goals such as stable and low inflation. Rapid increases in aggregate demand and actual growth can overheat the economy. Overheating occurs when aggregate demand (AD) rises excessively as the economy approaches full employment, where resources are increasingly scarce, causing inflationary pressures in the economy.

With reference to Figure 7, very large increases in equilibrium real output from Y_0 to Y_1 would be experienced as AD first starts to rise from AD_0 to AD_1 along the Keynesian range of the AS curve. This is due to the vast availability of untapped resources in the economy.

However, if AS remains constant with no increase in productive capacity, resources will become increasingly scarce. Further rises in AD from AD_1 to AD_2 and then AD_3 along the intermediate to classical range of the AS curve would lead to smaller and smaller extents of increases in real output over time. This is seen from the smaller rises in real output from Y_1 to Y_2 and thereafter to Y_3 . If AD goes on to rise beyond AD_3 to AD_4 , real output cannot rise further to grow in a sustained manner as productive capacity is constrained at Y_1 with full employment of resources in the economy.

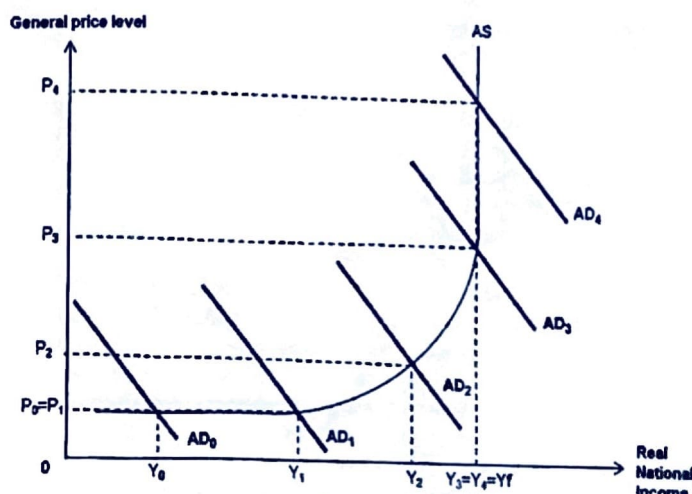


Figure 7: An Overheating Economy

As illustrated above, when AD rises rapidly while aggregate supply and productive capacity remains constant, the excess demand for goods must be met with the over-employment of resources, such as employing workers for extra shifts or using machinery beyond their recommended working hours. Such production is hard to sustain because over-employment of resources cannot be supported indefinitely. Once full employment is reached, any further increases in AD from AD_3 to AD_4 will only increase general prices from P_3 to P_4 , but not real output.

The excessive rise in AD, coupled with a lack of (or limited) increase in productive capacity would eventually lead to demand-pull inflation. The economy is deemed to be 'overheating'. Eventually, the higher rate of inflation due to overheating can harm growth. For example, high domestic inflation can hurt export competitiveness and cause uncertainty for investors. In turn, export revenue and investment expenditure (i.e., X and I components of AD) will fall, reducing real output.

More on demand-pull inflation in the later section on 'Inflation'.

Overheating can result from factors causing rapid rises in components of AD coupled with factors that limit the growth in productive capacity. China showed signs of overheating during the last two decades as it continued to experience booming exports and massive inflows of foreign direct investments.

b. Unequal and inequitable distribution of income

As discussed in Section 1.1.2, inclusive growth and equitable distribution of income and wealth does not come naturally as an economy grows. Growth that is uneven amongst different sectors of the economy propagates inequality in income distribution within a country.

Often, the real beneficiaries of growth tend to be the skilled and the minority rich who already have the savings that enable new capital accumulation and material gains from their investments. This small section of society will see a disproportionately bigger rise in capital incomes such as rents and wealth when the economy grows. Those unskilled and less wealthy benefit much less from growth. When income and wealth inequality become excessive, **inclusive growth** is not achieved since the rewards and dividends of increased prosperity are not shared equitably across all segments of the population.

Refer to Section 1.1.2 on inclusive growth.

Excessive income and wealth inequality reduces social cohesion by weakening community life and reducing trust amongst different segments of the society. It can have an adverse impact on non-material aspects of life such as individuals' health and well-being. Research findings have shown a positive correlation between the degree of income inequality and various social indicators such as higher infant mortality rates, shorter life expectancy, and higher crime and imprisonment rates.

Excessive income and wealth inequality also gives rise to unequal access to opportunities. Empirical studies found that countries with high income inequality tend to have lower levels of income and social mobility. As the income gap between the rich and the poor widens, social mobility is reduced. The lower to middle income groups will be disadvantaged in health, education, and job security among other aspects, making them feel increasingly unfairly alienated and further weakening social cohesion.

c. Negative externalities and environmental costs

Growth and rising incomes encourage the creation of artificial needs and wants where consumers are induced to buy things that they have no intrinsic need. The higher the rate of growth and consumption, the greater the use of raw materials, thus leading to higher cost on the environment. For example, the finite quantity of non-renewable resources such as fossil fuel and mineral deposits have been rapidly depleted due to excessive mining to meet the relentless consumers' demands for goods and services.

Higher economic growth also creates problems of negative externalities. The large scale burning of fossil fuels is increasing the carbon dioxide content of the atmosphere, creating harmful greenhouse effects. Growth involving land clearing by burning may also create problems of haze. These can lead to rising sea levels and long term health problems respectively, generating negative externalities on third parties and therefore lowering their non-material standard of living.

The degradation of the environment and the depletion of natural resources threaten economic growth in the long run. Hence, from the above examples, the current pursuit of rapid economic growth by some governments through such means may result in an unsustainable rate of future economic growth.

Refer to Section 1.1.3 on sustainable growth.

Section Summary

- There are both benefits and costs of economic growth on standards of living and other social and macroeconomic goals.
- Healthy growth can lead to a higher standard of living (both current and future), greater ability of the government to redistribute income in society, lower unemployment and reduced inflationary pressures (when there are increases in productive capacity).
- On the other hand, when growth is unsustainable, non-inclusive and cannot be sustained due to lack of expansion of productive capacity, it can create many social and economic problems.



EXAM TIPS: The benefits and costs of economic growth can be explained in terms of impact on relevant macroeconomic and social goals, or in terms of impact on the relevant consumers, firms, or government. How these effects should be explained depends on the phrasing and the context of the given question.

1.3 CAUSES AND CONSEQUENCES OF UNDESIRABLE GROWTH

What is a desirable rate of economic growth? A healthy economic growth rate is neither too fast to create high inflation nor too slow to create recession. It should be sustained, sustainable and inclusive in nature.

A slowdown or a negative economic growth rate over time may generate adverse effects such as falling living standards, higher unemployment and lack of consumer and business confidence. On the other hand, very high rates of growth may not be good either, if it brings about overheating and unsustainability. Many economists consider a stable annual growth rate of around 2-3% for an advanced economy to be ideal. It is also important for growth to be inclusive and sustainable, so no one is left behind unfairly as the economy prospers and the prospects of development are protected for future generations.

Undesirable growth occurs when the rate of growth is low or negative, unsustainable and/or inequitable.

A growth rate that is low or negative, unsustainable and/or non-inclusive is deemed to be undesirable. So, what are the causes of undesirable economic growth?

1.3.1 Causes of Weak / Negative Economic Growth

In the short term, countries rarely experience stable economic growth; instead, growth rates tend to fluctuate between periods of expansions and recessions from year to year, which we call business cycles. Some countries may experience short periods of weak growth. In 2020, for example, the Singapore economy shrank by 4.1% while in 2021 it rebounded by 7.6%. In the longer term, most economies experience positive economic growth. However, some countries may suffer from persistent sluggish growth over long periods.

A technical recession occurs when there is at least two consecutive quarters of negative GDP growth.

Countries experience weak or negative economic growth when they face declining or negative real rate of growth. This means that the real output rises at a falling rate or that there is a fall in real output. The causes of weak growth vary from country to country and can be categorised into aggregate demand and aggregate supply factors.

1.3.1.1 Aggregate Demand Factors

The rate of increase in aggregate demand (AD) for goods and services and the rate of economic growth are interrelated. When AD does not expand fast enough to keep the economy operating at its full employment output level, available inputs in the economy will lie idle, leading to demand-deficient unemployment and a low rate of economic growth. Factors adversely affecting the components of AD (i.e., C, I, G and NX) will lower the level of AD and hence lead to weak or negative rate of economic growth, often indicated by periods of recessions.

Refer to the lecture notes on "How the Macroeconomy Works" for the detailed explanation on the determinants of C, I, G and NX.

Some of these factors are *domestic* in origin, and would negatively affect the C, I and G components of AD. For instance, a higher domestic interest rate adopted by the monetary authority to curb high inflationary pressures would have the effect of dampening spending by both households and firms as the costs of borrowing is more expensive. As C and I components of the AD fall, there would be plant closures and job losses, leading to lower real output and recessions.

International factors, also called *external shocks*, can bring about recessions too. This can affect I component of AD (through foreign direct investment) or the NX component of AD. For example, when our trading partner experience a recession, it would lower foreign demand for our exports and negatively affect growth for us.

1.3.1.2 Aggregate Supply Factors

Aggregate supply (AS) factors are those that affect the *quantity* and/or *quality* of resources. They can affect both actual and potential growth.

a. Lack of fixed capital investment

Fixed capital investment affects both actual and potential growth through its effects on AD and AS. Private sector firms spend on *new capital formation* such as building new factory plants or buying new machinery, increasing the I component of AD. Furthermore, to keep increasing national output at a satisfactory rate, economies also must spend on *replacing its worn-out and obsolete capital* with the most up-to-date and technologically advanced plant and equipment. As a result, the productive capacity and AS of the economy grows, with an increase in the quantity of capital available and improvements in quality of capital and productivity.

Recall that capital refers to physical capital such as infrastructure, factory plants and stocks of machinery, equipment and building that are used to produce goods and services.

Fixed capital investment also affects growth through its effects on labour productivity. To make labour more productive, it is important for the economy to keep investing in new capital. When more capital stocks are made available for each worker, *capital deepening*,

which is the increase in capital to labour ratio, is achieved. Productivity of labour would increase, leading to lower unit costs of labour and higher productive capacity. Economic growth is achieved.

A lack of fixed capital investment will thus limit both actual and potential growth in an economy, leading to weak or sluggish growth. An economy will slow down if it devotes a higher proportion of its resources to producing consumer goods over capital goods.

For capital stock to expand, investment funds must be available in the loanable funds market. A high savings rate in the country is thus needed to provide cheap and readily available funds for borrowing, especially when there is a lack of foreign investment. However, the savings rate is low in many developing countries, making it difficult to generate sufficient savings to provide funds needed to finance investment projects.

Below are some factors that can affect the savings rates in a country:

- Possible high levels of poverty and low incomes making it hard for people to accumulate savings after spending on daily necessities
- An erosion of traditional beliefs in the 'virtues' of savings
- High level of social security benefits such as healthcare subsidies and other forms of welfare has reduced the need to rely on savings for rainy days
- Expectations of high inflation in the future might cause households to bring forward their purchases, resulting in a low rate of savings
- High income tax, which lowers disposable income relative to gross income, hence less ability to save
- The role of central banks or market forces in decreasing interest rates which is the returns on savings, thereby discouraging savings
- The liberalisation of the financial sector which results in the ease of obtaining unsecured credit, leading to a decreased dependence on savings, etc.

b. Lack of / fall in quantity and quality of natural resources

Natural resources are the factor inputs provided by nature such as land, rivers, and mineral deposits. An increase in the quantity or quality of natural resources, such as the discovery of new mineral deposits and shale gas reserves, will increase an economy's productive capacity and shift the aggregate supply curve to the right.

Conversely, the destruction and depletion of non-renewable resources and degradation of the natural environment can threaten potential economic growth. Natural disasters like earthquakes and wildfires and human disasters like wars can destroy vast areas of land and natural habitat. Unsustainable growth strategies are also detrimental to our environment and reserves of natural resources. These can lead to a fall in quantity and quality of natural resources, reducing productive capacity and AS over time and causing the AS curve to shift inwards. Consequently, a steady growth in real output would be unsustainable in the long run. Refer to Section 1.3.3 on 'Causes and Consequences of Unsustainable Economic Growth' for more details.

c. Lack of investment in human capital

Human resources are necessary for turning natural and capital resources into products. Both the quantity and quality of labour are important for a country's growth.

The quantity of labour depends on the size of the working population and the average length of the work week. Countries like Singapore sometimes need to employ foreign labour to achieve economic growth in face of shortage of labour and ageing population. Other than quantity, the quality of the labour force is also important. Workers are effective inputs in a growing economy if they are well-educated, trained, healthy and motivated. They must also be geographically and occupationally mobile.

Note
Gross investment spending is total investment by firms on new capital goods.

Replacement investment (or capital depreciation) is spending to replace a firm's plant and equipment which has become worn out or obsolete.

If gross investment is higher than depreciation, net investment is positive. Businesses will have higher productive capacity and can meet rising demand in the future.

The quality of labour can be improved through education and training. This is known as investment in human capital. Human capital is the economist's term for the knowledge and skills that workers acquire through education, training, and experience over time. Human capital investment raises a nation's labour productivity and hence, ability to produce goods and services. As output per worker increases with labour productivity, the nation's productive capacity will rise, pushing the AS curve rightwards.

Refer to
Microeconomic
Policies: Supply-side
policies for more
details on improving
the quality of labour.

A nation's education system plays a vital role in improving the quality of human capital. In many developing countries, there are high opportunity costs of diverting existing resources away from their current use to education. The skills level of the labour force thus remains low. For example, in some poorer countries, many children have to work and cannot afford to forgo any potential wages needed to support their families by attending school. *[Note: The benefits of education and training are often only realized in the long run. In the short run, raising the educational level reduces the labour force, detracting from growth objective but in the long run, labour productivity (i.e., output per labour) is enhanced, leading to an improvement in economic growth.]*

Entrepreneurs with pioneering, risk-taking and inventive spirits are also needed for growth and development. According to Joseph Schumpeter, entrepreneurship employs 'the gale of creative destruction' to replace in whole or in part inferior innovations across markets and industries, simultaneously creating new products including new business models. In this way, creative destruction is largely responsible for the dynamism of industries and long-run economic growth. Schumpeter believed that if this spirit of entrepreneurs is replaced by a security-seeking bureaucracy of managers, capitalism will decay, and economic growth will be stunted.

d. Lack of technological advancement

Technological advancement is the discovery of new knowledge that permits new ways of combining a given amount of resources to result in a larger output through research and development (R&D). It includes:

- New production techniques
- Improvements in the design and performance of machines
- Better organization and management processes
- More efficient transport and communication systems, etc.

Invention and innovation results in developments of new products and more efficient production of existing ones, leading to economic growth. When new products are created for the market, consumers are induced to spend. This can open up new investment opportunities as development and expansion in one industry could spread to related industries, setting off a chain reaction and stimulating more business investments. The average costs of production would fall as output per input increases with innovation. As a result, both AD and AS will increase, resulting in economic growth. For example, the development of standardised shipping containers and mega-ships have lowered shipping costs significantly over the past few decades, enhancing international trade and economic growth.

The source of many areas of such technological progress is basic and applied research which requires tremendous investments to finance. Countries with little investment in technology will likely see slow growth with the usage of archaic production methods and equipment. Countries with large investments in R&D, however, are also not guaranteed with higher rates of economic growth. The rate of technological progress depends on the success of the scientists and innovators. With great uncertainty of success as well as prohibitively high costs, institutional support such as government subsidies is often needed for R&D to take place, especially in basic research, although economists differ on how effective government strategies are in promoting technological advancement.

e. Structural rigidities

Weak economic growth can be a result of structural rigidities within a country. Structural rigidity often refers to a lasting feature in an economy caused by a set of institutions, which prevents a market from operating freely. It manifests itself in all kinds of markets.

For example, many European countries have strict labour protection laws restricting businesses' ability to lay off and discharge workers. Such laws provide employment security for workers but also create *labour market rigidity*. Businesses would find it hard to control costs, especially during recessions, as they cannot lay off workers to cut wage bills, making them more prone to closure. Furthermore, a strong trade union presence in countries like Spain, Belgium and France also results in a high degree of coordination of wage bargaining processes and minimum wage setting. Together with economy-wide employment protection legislation, wage rigidity, which refers to the phenomenon where wages cannot be adjusted downwards, is observed. Firms face high labour costs and severance payouts from firms, making it hard and costly to hire and fire. Over time, such labour rules create a less dynamic economy, slow in productivity and economic growth.

In addition, structural rigidity is also observed in *product markets* in the European Union. In Greece, for instance, strong barriers to entry involving excessive regulations have deterred foreign investments. The high administrative and bureaucratic costs of starting a business have also put off prospective investors, slowing potential growth.

Many countries, not only in Europe, must undergo structural reforms to address these deep-seated underlying inflexibilities to achieve sustained growth. Such reforms can contribute to removing barriers to the smooth and efficient functioning of *product, capital and labour markets*. These will affect the potential growth rate of an economy through their influence on employment and productivity growth. However, these reforms have often met with resistance as the process can be protracted, leaving the vulnerable coping with the costs of adjustments such as lower wages, increased unemployment, and worsening income inequality. A balance must be struck between sustained growth and equitability.

Section Summary

- Negative growth, indicated by a contraction of real GDP, or slowdown in real growth rate to very low levels over time can be caused by factors affecting the level of AD as well as factors affecting the level of AS.
- Slow and weak growth can be due to a rise in AD relative to AS, where productive capacity fails to keep up with the rise in AD. This results in no sustained increase in real output while demand-pull inflation arises instead.

1.3.2 Consequences of Weak / Negative Economic Growth

A weak/low or negative economic growth (recession) has impacts on both the macroeconomy and the individual economic agents.

a. Higher unemployment

A rise in cyclical unemployment will occur when an economy is experiencing negative economic growth or recession. A **technical recession** is defined as a fall in real GDP for two consecutive quarters. This means a fall in real national output produced in the economy. Firms will hire less factors of production, including labour, to produce the reduced level of real output. Unemployment has many consequences on individuals, governments, and society. They include:

- Forgone output / income in the economy
- Strain on government budget with lower tax receipts and higher unemployment benefit payouts
- Social problems such as stress, discontent, unrest, and crime

- Hysteresis (applies to demand-deficient unemployment)

[Refer to Section 2.2.1 for detailed explanation of cyclical unemployment and Section 2.3 for detailed explanation on consequences of unemployment]

b. Lower standard of living and savings

A recession is associated with falling real national income. Assuming no change in population, real national income per capita falls, indicating a fall in the purchasing power of the average individual in the economy. Unemployment also arises as firms lay off workers. Households earn and consume less if they are not working. Overall, with a lower ability to consume goods and services, *material standard of living* deteriorates.

Moreover, in a period of low or falling growth rates, governments receive less tax revenue due to lower tax collected from personal income taxes, corporate income taxes and consumption taxes. This means less funds are available for government spending on social services such as healthcare and education, which may lower *non-material standard of living*.

Furthermore, with lower income earned, the level of savings in the economy would be lower. Savings by unemployed households may likely be negative during recessions. This is because with lower incomes, these households will now have to spend a larger proportion of their lower income on necessities and hence, they are not likely to have excess income to save. In some cases, they may even need to draw down past savings to ride through the economic hardships. Lower savings has implications on a country's future standard of living.

c. Slower long term economic growth rates due to pessimistic outlook

Recessions may lead to lost output in the future. A recession spells higher unemployment and loss of income to those retrenched. Workers also fear possible further losses of jobs or pay cuts. Thus, with a bleak outlook on the overall state of the economy and on their personal finances, *consumer confidence declines* and consumers tend to save or cut back on their current expenditure on goods and services.

A recession also results in a *fall in investor confidence*. Since households are unwilling to spend, business sales and revenues would decline. Firms expect lower profitability on their future sales will thus cut back on risky investments, causing investments to fall.

From the above, the fall in C and I due to recession, *ceteris paribus*, would cause a further fall in the level of AD, resulting in a deepening of the recession. The lower rate of investment and capital production will also slow down the growth in productive capacity and hence negatively affect economic growth in the long run.

d. Lower inflation rate

One positive consequence of weak economic growth is that it may help to reduce the rate of inflation. If a country is operating at full employment level and suffering from overheating and high inflation, a slower growth rate may help slow down the rate of price increases as aggregate demand weakens. This may be beneficial as it may help an economy avoid the negative impact associated with high and unanticipated inflation.

For example, historically, the US faced two serious inflationary periods in 1974-5 and 1979-1981, largely due to oil price shocks and higher wages. Each was followed by a recession during which the rate of inflation normalised. The inflation rate fell from 11% in 1974 to 5.8% in 1976. In 1983, the inflation fell from a 1980 rate of 13.5% to 3.2%.

e. Influences on the balance of payments position

With a recession, the fall in real income reduces purchasing power. Consumers hence consume fewer goods and services, including imports. *Ceteris paribus*, net exports increase, helping to *improve trade balance in the current account* of the balance of payment (BOP).

Refer to Section 4
for more details on
BOP.

However, a recession may worsen investment sentiments. This may cause foreign investors to withdraw their investment funding and relocate businesses from the country. *Ceteris paribus*, this could result in *net outflow of capital funds, thus worsening the capital and financial account* of the BOP.

The net impact on the BOP position depends on the relative sizes of impact on the balance of trade and the capital and financial account.

Section Summary:

- A slowdown or negative economic growth rate may result in a lower standard of living as well as other macroeconomic problems such as high unemployment.
- A slowdown in growth may, however, reduce inflationary pressures on the economy, if the economy was operating at full capacity with few idle resources.



EXAM TIPS: The consequences of a weak economic growth are many; they may be explained in terms of impact on other macroeconomic or social goals or in terms of impact on the relevant consumers, firms, or government. How these effects should be explained depends critically on the phrasing and the context of the given question.

1.3.3 Causes and Consequences of Unsustainable Economic Growth

Unsustainable growth can happen as countries set weak environmental protection laws and even lower environmental protection standards to drive rapid growth and compete for foreign direct investments. Some governments have adopted policies such as subsidies that encourage excessive and often uneconomic use of inputs such as fertilisers and pesticides which have the potential to pollute and destroy the environment. Some subsidies also encourage overharvesting of already depleted fish stocks.

Rapid urbanisation and industrialisation also contributed to habitat destructions, vast felling of trees and deforestation, as well as stress on the earth's finite fuel and mineral resources, leading to resource depletion and unsustainability. Global biodiversity continues to decline due to habitat loss. Land degradation and desertification also worsens due to deforestation and poor agricultural practices. Between 2000 and 2010, forests have seen annual losses of 5.2 million hectares (roughly 70 times the size of Singapore), despite declines in deforestation rates and increased forest plantations. Increased fossil fuel consumption for industrialisation and growth means increasingly polluted air and water. A 2022 World Bank report estimated that the cost of the health damage caused by air pollution amounts to \$8.1 trillion a year, equivalent to 6.1% of global GDP. Poor, elderly, and young children who come from poor families are the most affected and the least likely to be able to cope with the health impacts that come with air pollution.

Uncontrolled growth of motor vehicles, reliance on more polluting fuels (e.g., coal) for power generation, and specialisation in more polluting industries also play a part in hindering sustainable growth. *[Read more on factors affecting sustainable growth in Appendix C of 'Key Economic Indicators' lecture notes.]*

The above concerns have encouraged countries to consider sustainable development and growth as their policy goal, which involves a commitment to less wastefulness, greater conservation, and socially responsible ways to allocate and use natural resources while pursuing economic growth.

In the 2021 Glasgow COP26 meeting, for the first time, more than 40 countries agreed to gradually phase out the use of coal, the dirtiest fossil fuel and the world's largest source of carbon dioxide emissions, for power generation by 2030s. Many countries also vowed to end deforestation while pledging \$19 billion in financing, some of which will go to developing countries to restore damaged land, tackle wildfires and support indigenous communities.

Singapore's Green Plan 2030 lays out our path towards sustainable development and our long-term net zero emissions aspiration. The plan cuts across all sectors of society, ranging from infrastructural development, research and innovation, to training programmes and will influence all aspects of our lives, from how we live to how we study, work and play. By 2030, at least 20 per cent of schools in Singapore will be carbon neutral. There will be an over 50 per cent increase in nature park land. Cycling paths will triple in length while the rail network will also be expanded to 360km, up from 230km today.



Singapore's Green Plan offers new jobs and economic growth

1.3.4 Causes and Consequences of Non-Inclusive Economic Growth

Empirical evidence shows that there seems to be a positive relationship between further economic growth and increasingly unequal income distribution over the long term. For instance, economic restructuring from low value-added, labour-intensive production to high value-added, capital-intensive production would bring about economic growth. However, it could also disproportionately benefit capital owners at the expense of low-skill workers, widening the income gap and worsening inclusivity. Similarly, globalisation that brings about greater flows of trade and capital, spread of technology and migration of labour can boost incomes for export-oriented industries while hurting industries that produce goods substitutable by imports, generating greater income disparity. There could be insufficient efforts by governments to redistribute income and wealth. [Read more on factors affecting inclusive growth in Appendix C of 'Key Economic Indicators' lecture notes.]

Singapore is no exception. As our economy grew in the last two decades, there were times when the share of the total income gains not being evenly distributed among Singaporeans, with rewards enjoyed mainly by successful businessmen, entrepreneurs, and innovators while a smaller share went to the rest of Singaporeans. This was evident from our generally rising Gini coefficient between 2000 and 2012. It was also often difficult for those in the lower to middle income groups to achieve income mobility, moving up the ranks from lower income brackets.

Going forward, Singapore faces challenges in narrowing its income gap coming from globalisation, increased competition, and the lack of relevant skills of low-skill workers. Productivity gains have also declined due to heavier reliance on foreign labour inputs to generate economic growth.



Commentary:
Singapore should focus on economic growth rather than redistributing a smaller pie as it reopens

The government will play an important role in achieving more inclusive growth in our economy. As Singapore strives for the next phase of its economic development, our policymakers need to ensure there is greater and more even distribution of our expanding economic pie across the different segments in the society. The Singapore government believes that *productivity-driven growth* is the means to deliver inclusive economic growth and it has put in place many policies to help increase the productivity of workers. In addition, it has implemented measures to alleviate the economic burden of the lower to middle income groups and to facilitate social mobility via tax rebates and increased subsidies on healthcare and education. These policies had been extensively discussed under 'Market Failure and Government Intervention' lecture notes Section 5.7 'Policies to Greater Income Equality and Equity'. More will be discussed under 'Macroeconomic Policies – Fiscal Policy' in the next set of lecture notes.

2 FULL EMPLOYMENT AND UNEMPLOYMENT

2.1 DEFINITION OF UNEMPLOYMENT

Theoretically, full employment is a situation where all factors of production such as land, labour, capital and entrepreneurship are fully and efficiently utilized. An economy experiences full employment when it produces a combination of goods and services that lies on its PPC.

In practice, however, 'full employment' and 'unemployment' are used in relation to the employment of labour resources. Unemployment refers to the situation where people who are available for work and are actively seeking work cannot find jobs. Governments aim to achieve full employment and a low unemployment rate.

2.2 TYPES AND CAUSES OF UNEMPLOYMENT

There are three main types of unemployment, namely, demand-deficient (also called cyclical) unemployment, structural unemployment, and frictional unemployment. Each type of unemployment has its varied causes.

2.2.1 Demand-deficient / Cyclical Unemployment

Demand-deficient unemployment is unemployment caused by a fall in aggregate demand. It is associated with economic recessions, where national income falls for at least two consecutive quarters or undergoes a steep slowdown in growth. It is called demand-deficient unemployment because the lack of demand for labour is derived from a lack of demand for goods and services in the economy. It is also known as *cyclical unemployment* due to the cyclical nature of such unemployment during the business cycles of recessions and recoveries in the economy.

Note:
In practice, the economy does not have to go into recession for cyclical unemployment to start rising. Many jobs can be lost even in a slowdown phase.

When there is a fall in aggregate demand associated with a recession, AD_1 shifts to AD_2 in Figure 8. The fall in AD leads to a contraction in output across many industries. As they produce a lower level of national output at Y_2 instead of $Y_1 (=Y_f)$, firms would hire fewer factors of production, including labour, to cut costs and maintain profits. This process is known as 'labour shedding' or 'down-sizing'. Given that labour is a derived demand, the demand for labour falls as AD falls. More workers are laid off and fewer jobs are created, creating spare capacity and higher unemployment in the economy.

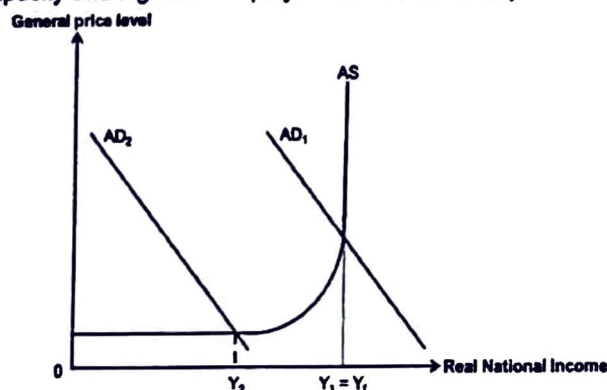


Figure 8: Demand-deficient unemployment

Demand-deficient unemployment exists fundamentally due to a lack of production activities, therefore, a lack of job vacancies. As long as the economy is in recession, firms would be unwilling and unable to offer more jobs. The deeper the recession becomes and the longer it lasts, the higher demand-deficient unemployment will become. As the economy recovers and begins to grow again, demand-deficient unemployment will start to fall again.

2.2.2 Structural Unemployment

Structural unemployment is the term economists use to describe unemployment that happens due to a mismatch of skills between the unemployed and the skills required by producers seeking labour. The unemployed are unable to take up jobs in new sectors with different skills requirements.

Structural unemployment, unlike cyclical unemployment, is caused by forces other than the business cycles. It is typically long-term and chronic, and may exist even when the economy is not in recession. Structural unemployment is often caused by external processes or events that trigger fundamental changes in the economy, including:

a. Changes in pattern of demand

The long term demand for a country's goods and services may fall even when the economy is not in recession because of changes in taste and preferences or invention of new and better substitutes. Production gradually decreases in the affected industry, rendering the industry a 'sunset' industry. Demand for labour continually falls in the sunset industry, causing unemployment. The unemployed workers may struggle to relocate to new industries where very different skills are required.

For example, the falling demand for coal led to the closure of many mines in the US, UK, and China, leaving many miners struggling to find suitable work. This was attributed to the boom in natural gas as an alternative source of electricity especially in the US. Natural gas had become cheap and plentiful thanks to new extraction technologies. At the same time, coal also leads to major environmental problems, accounting for the most carbon emissions of any fossil fuel used for generating electricity. The cost of renewable power sources like wind and solar have become increasingly competitive with coal, further eroding its market share. As manual workers, the unemployed coal miners may have no formal qualifications and relevant skills to find work in new industries in other sectors of the economy such as the services sector. Older workers may also be pessimistic about their chances to learn new skills in high-tech industries.

In the case of Singapore, during the economic transformation in the 1980s and 1990s, there was a progressive downsizing of local electronics industries as consumer demand shifted towards cheaper imported electronics. Workers in the local electronics industries lost their jobs and could not find new jobs as jobs that were offered were mostly in industries producing high-tech goods and services associated with information technology, for which the unemployed workers lacked the skills to join, creating structural unemployment problems.

b. Foreign competition (or changes in comparative advantage)

Foreign competition is another factor leading to structural unemployment in an economy. It causes the same jobs to move to a different location and workers do not or cannot follow. Globalisation, in fact, is one of the driving forces behind increased competition around the world, causing many manufacturing jobs to move from high-wage economies to low-wage countries. Developing countries, such as China, India, and Bangladesh, generally provide cheap labour due to their large population base; this has attracted many companies from developed countries to relocate their manufacturing facilities to these developing nations. As a result, workers who were previously involved in manufacturing in the developed countries become unemployed and many may suffer a period of structural unemployment.

Farmers in emerging markets offer another example of structural unemployment. Free trade allowed large global food corporations access to their local markets, putting small-scale farmers out of business. Local farmers find it hard to compete with the lower prices of the global firms. As a result, they headed to cities in search of work, perhaps in factories. However, many face structural unemployment until they were retrained.

Note:
Globalisation can cause structural unemployment. More details will be covered under a later topic on 'International Economics'.



Will globalisation take away your job?

c. Changes in technology and occupational immobility

The introduction of new technologies can cause some of the existing jobs to become obsolete, leaving many unemployed. When the methods of production change with the advancement in technology, workers must upgrade their skills to complement the methods of production and be productive. However, upgrading of skills is often difficult and takes a long time. As long as workers are lacking these new skills, they would be structurally unemployed. Moreover, new technologies can sometimes substantially increase productivity, allowing companies to reduce their labour demand without affecting their overall output. As such, many workers face the loss of their jobs and structural unemployment will arise.

When there is structural unemployment, job vacancies may exist. However, firms will only offer jobs to workers with the relevant skills. Many jobs are thus left vacant because of **occupational immobility**, which is the lack of ability or willingness of people to take up new jobs, typically because they do not have skills that befit the occupation. This could be because of an unwillingness to receive training, or the ineffectiveness of training due to steep learning curves.

Structural unemployment has been common since the onset of industrialisation in the 1960s as firms constantly innovate their processes to incorporate more labour-replacing technologies. Workers were increasingly required to know how to operate the latest production machineries, or they would be structurally unemployed. For example, in the newspaper industry, online news media and web-based advertising have drawn customers and advertisers away from physical newspapers. Many employees for newspaper publishers, such as printers and delivery workers, were laid off. As their skills were focused on paper-based method of distributing news, they had to get new training before qualifying for a job in the new media industry.

d. Geographic immobility

Geographical immobility is the lack of ability or willingness of people to relocate within a country in order to find jobs. While a person's skill may be irrelevant in his or her locality, the skills may be relevant in another industry concentrated in another region. However, the worker remains unemployed due to an unwillingness or inability to relocate. For instance, the decline in the South Wales coal-mining industry led to high unemployment in the Welsh valleys. Welsh workers would be able to find jobs if they relocate to other regions in England with coal-mining activities. However, they may be unwilling or unable to because of concerns over changes in the costs of living and the financial costs involved in moving and renting a new home (which includes the costs of selling a house and removal expenses), or because of family and social ties in their place of birth. Thus, they remain structurally unemployed in their locality.

The greater the occupational or geographical immobility of labour, the more severe is structural unemployment.

2.2.3 Frictional Unemployment

Frictional unemployment refers to the unemployment of workers when they take time to search for jobs and remain unemployed in the meantime. The need for job search is a result of market imperfections such as **imperfect information** of existing market conditions. Workers are ignorant of all available job opportunities and the work they entail while firms do not know what labour is available for them to choose from. Thus, workers and firms take time to find the right job match.

The labour market is characterised by a great deal of searching by both workers and firms such that employment contracts are not immediately signed, and unemployment arises. Frictional unemployment occurs for new entrants to the labour force (e.g., fresh graduates starting work) and for people transiting between jobs. *It is inevitable and always exists.*



SkillsFuture report
pinpoints skills
Singaporeans urgently
need in the next 3

The economy is dynamic, with jobs continually being created and destroyed and workers continually entering and exiting the labour force. There is always some frictional unemployment as workers are searching and matching with appropriate jobs. Job search is efficient as it leads to a better match between the skills of workers and the skills necessary to carry out productive tasks. Furthermore, frictional unemployment is typically not severe and lasts only a short duration.

Section Summary

There are three main types of unemployment, namely,

- Demand-deficient unemployment due to insufficient demand in the economy.
- Structural unemployment due to structural changes in the economy resulting in a mismatch of skills between the unemployed and the job vacancies.
- Frictional unemployment due to imperfect information in job market.

2.3 CONSEQUENCES OF UNEMPLOYMENT

Unemployment can have negative impacts on households, firms and the government.

a. Forgone output or income in the economy and lower living standards

Unemployment results in the wastage of scarce labour resources that result in a loss of potential output for the economy. This wastage of resources limits the attainment of economic growth, which is a key macroeconomic objective of the government. With reference to Figure 9, the economy produces a combination of goods and services represented by point A within the PPC, instead of point B on the PPC, where output is higher. Society is thus deprived of a higher output. As output and incomes fall, less expenditure can be made. Society's material standard of living is compromised as lower quantity of goods and services are available for consumption.

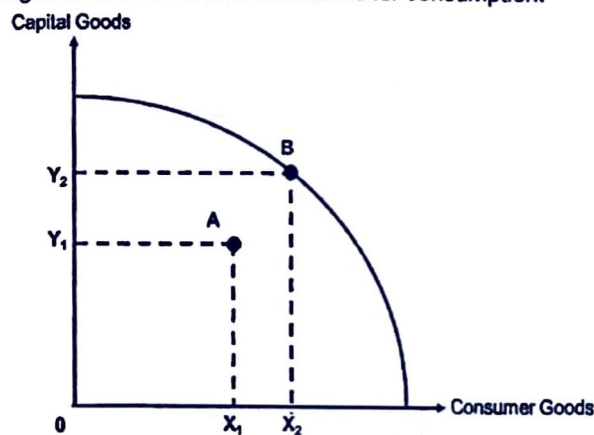


Figure 9: Loss of output in society due to unemployment

The effect of unemployment is most directly felt by *households*, where the loss of production means a lower household income, especially for unemployed individuals¹. Wages also tend to be lower when there is unemployment because when labour is readily available, many job-seekers compete to offer lower wages in search of jobs. Thus, households generally have lower purchasing power, resulting in a lower material standard of living. Unemployment also creates stress for those supporting families, and a lower ability to purchase essential services like healthcare, decreasing **non-material standard of living**.

¹ Depending on the level of welfare given by the state, the unemployed may still receive some unemployment benefits from the government. Even then, it is likely that welfare benefits are less than the wages they could earn.

As consumer spending is generally lower in the country, there would also be a lower production level as firms produce less in response to lower demand. Lower production levels mean greater spare capacity. There is thus less incentive for firms to invest in capital goods used to further production, so investment levels are lower as well.

b. Strain on government budget

Government budgets are also affected by unemployment as the government receives lower tax revenue and incurs higher expenditure. The unemployed do not receive an income so they do not pay income tax. This results in a loss of tax revenue for the government. Depending on the type of welfare system in a country, the government may also incur higher expenditure on unemployment benefits and other welfare payments when unemployment increases. Governments may also need to spend on managing social problems related to the unemployed such as crime. Such expenditure constitutes a cost to society as limited amounts of money in the government budget are handed out to people who are idle or spent on avoidable social problems instead of being put to other productive use.

c. Social problems

Unemployment is commonly associated with various social problems that affect non-material standard of living. They include higher incidences of deviant behaviours and crimes, including theft, alcoholism, depression, child abuse and suicides. People who remain unemployed for long periods may turn to stealing and robbery to survive. Stress levels are higher during unemployment as the unemployed are unable to gain employment while the employed worry about their ability to keep their jobs. Self-esteem and personal relationships may deteriorate as a result.

If unemployment rates are not evenly distributed across the country, with some regions (or industries) experiencing higher unemployment rates than others, income inequality within the country will be exacerbated. This will polarise the high income, low unemployment regions (or industries) and the low income, high unemployment regions (or industries) across the country. This can lead to social and political unrests and eventually destabilise economies.

d. Hysteresis (applies to demand-deficient unemployment)

While demand-deficient unemployment is typically short term since it will be reduced during the upward swing of the business cycles (i.e., during economic recovery and growth), the impact of such unemployment may be long term. Unemployment may persist even when the economy recovers and demand is no longer deficient. This is because protracted unemployment could deskill and demoralised retrenched workers, such that these workers are not readily employable even when the economy recovers. This is known as **hysteresis**, a condition where unemployment persists even when the demand deficiency that caused it no longer exists. This loss in productivity results in a reduction in the productive capacity of the economy and loss of potential output in the long run.

Section Summary

- In theory, full employment occurs when all resources are fully and efficiently utilized to produce the maximum output an economy can produce.
- In practice, full employment refers to the situation when all labour resources who are willing and able to work, and are actively seeking work, have found jobs. It is achieved when the natural rate of unemployment is attained. This is a positive and low rate that includes structural and frictional unemployment. [See Appendix 1 for details on natural rate of unemployment]
- Unemployment indicates wastage of resources that results in a lower production, greater strain on the government, and more social problems.



Singapore's labour market could bottom out by end-2020, but uneven recovery may widen income gap: Analysts



Middle-aged workers harder hit by COVID-19 downturn, economists suggest tracking 'vulnerable' group



After COVID-19, where are the Singapore economy, workforce headed?



EXAM TIPS: The consequences of unemployment can be explained in terms of impact on other relevant macroeconomic goals like economic growth or in terms of impact on the relevant households, firms, or government. How these effects should be explained depends critically on the phrasing of the given question.

3 INFLATION AND DEFLATION

In recent years, countries like Venezuela, Zimbabwe, South Sudan and Argentina have been suffering from crippling high rates of inflation. In August 2019, Venezuela hyperinflation hit 10 million percent. 'Shock therapy' may be only chance to undo the economic damage. Shock therapy measures, based on recent economic history, can include ending price controls and government subsidies, instituting higher tax rates and lower government spending to reduce budget deficits, devaluing the currency to boost foreign investments and selling state-owned industries to the private sector.

More recently towards the end of 2021, inflation fears have been rising globally with countries like Hungary, Brazil and Turkey amongst others struggling with rising prices amid record inflation rates. In other parts of the world, officials from the US Federal Reserve to the European Central Bank and the Bank of England are closely watching their worsening inflation rates and deciding whether to change their current policies to ensure greater price stability, while the Bank of Korea, South Korea's central bank had already raised interest rates to stave off inflation fears.

What causes inflation or deflation? Why do economies fear high and unstable inflation as well as deflation? Why do Central Banks typically aim to achieve mild and stable inflation?

3.1 DEFINITION

Inflation is a situation where there is a **sustained increase in the general price level**. It is generally calculated using percentage change in a country's consumer price index (CPI).

The inflation rate is calculated as below:

$$\text{Inflation rate}_{\text{current year}} = \frac{\text{CPI}_{\text{current year}} - \text{CPI}_{\text{previous year}}}{\text{CPI}_{\text{previous year}}} \times 100\%$$

While the prices of some goods and services increase, the prices of others could be falling. If **on average**, prices are rising for a **sustained period of time**, then inflation is said to have occurred.

3.2 TERMS ASSOCIATED WITH INFLATION

There are various degrees of inflation including:

- **Mild/low inflation:** An inflation rate that is single digit and does not distort relative prices severely. Central Banks typically set an inflation target of around 2% to 3%.
- **Galloping inflation:** Price level increasing at a higher rate at double or triple digits, hence causing money to lose its value at a rapid rate.
- **Hyperinflation:** Extremely high (more than triple digit) rate of inflation. People lose confidence in the currency which will then cease to function as a medium of exchange. May have to resort to barter trade.

Other terms associated with inflation include:

- **Disinflation:** Slowing rate of price increases or falling inflation.
- **Deflation:** Falling prices or negative inflation.



ECB heads into pivotal policy meeting with inflation and Omicron fears



Fastest inflation in 31 years puts heat on Washington



Inflation: Prices on the Rise



Is Turkey on the brink of hyperinflation?

- **Stagflation:** A period of rising prices coupled with no or negative growth in real GNP/GDP and high or rising unemployment.

Inflation can be anticipated or unanticipated.

- **Anticipated Inflation** refers to that inflation rate which is steady and expected. When inflation is anticipated, individuals and businesses are able to accurately predict the inflation which will take place.
- **Unanticipated Inflation** refers to inflation that is volatile and unexpected. When inflation is volatile from year to year, it becomes difficult for individuals and businesses to correctly predict the rate of inflation for the near future. Unanticipated inflation occurs when economic agents (households, businesses and government) make errors in their inflation forecasts and actual inflation ends up well below, or significantly above expectations. There are many ill-effects to an economy when individuals and businesses make wrong predictions about future inflation rates.

Central Banks monitor the inflation rate to ensure an environment of low inflationary pressures conducive to sustainable economic growth.

3.3 CAUSES OF INFLATION

Generally, inflation can be classified into two main types – demand-pull inflation and cost-push inflation.

3.3.1 Demand-pull Inflation

Demand-pull inflation refers to a sustained increase in general price level caused by **persistent rises in aggregate demand (AD)** and is usually associated with a booming economy. This is reflected by continuous shifts of the AD curve to the right. Sources of demand-pull inflation include non-general price level factors that cause an increase in autonomous consumption, investment, government expenditure and autonomous net exports. These factors include monetary or fiscal stimulus to the economy, positive expectations about future income and/or sales, rising property prices, expectations about inflation, economic growth in other countries and so on. *[Note: The detailed explanation on how these factors affect AD has been covered under 'How the Macroeconomy Works' lecture notes].*

Figure 10 shows the economy initially in equilibrium with the price level at OP_0 and output at OY_0 . Suppose that there is an increase in the value of autonomous net export. This causes an increase in AD because X is a component of AD. The increase in AD is reflected by a rightward shift of the AD curve from AD_0 to AD_1 . The increase in AD will create shortages in the economy because current spending exceeds current production levels at the initial general price level P_0 . Assume that the economy is initially operating along the intermediate range of the AS curve, firms respond to the rise in demand partly by raising prices and partly by increasing output. This is because as the economy approaches full employment, factors of production like labour and raw material become scarcer. The competition for scarce resources will then cause firms to bid up factor prices. As each additional unit of output becomes costlier to produce, prices have to increase to ensure that production remains profitable. The increase in real national income from Y_0 to Y_1 is thus accompanied by an increase in general price level from P_0 to P_1 .



Bank of Japan says
inflation may
approach 2% target
through various
channels

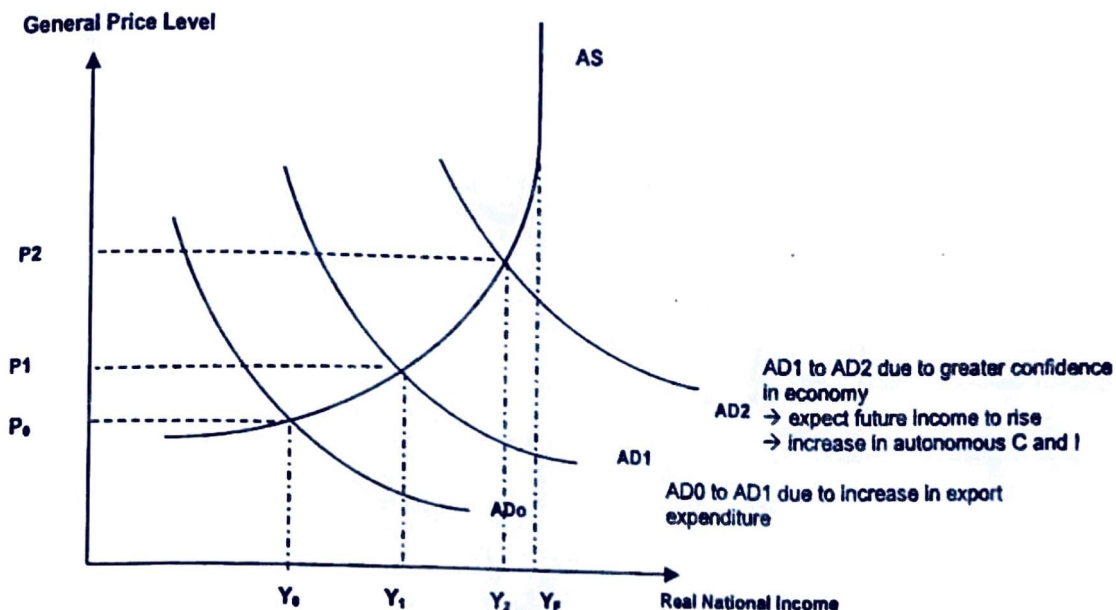


Figure 10: Demand-pull Inflation

In order for inflation to occur, the increase in general price level must persist over a period of time. If the export-led boom causes households and firms to have greater confidence in the future such that they expect income and sales to continue to increase in the future, these households and firms will have incentive to buy more and invest more now. This increase in autonomous consumption (C) and autonomous investment (I) will cause AD to increase further from AD_1 to AD_2 and in turn the general price level will increase further from P_1 to P_2 , resulting in higher demand-pull inflationary pressures.

How much firms raise prices depends on how much slack (otherwise known as spare capacity) there is in the economy. At lower levels of real national income/output, when there is lots of available spare capacity, firms can easily expand output to meet increases in demand without increasing prices much. The effect here is a mild increase in the price level from P_0 to P_1 . However, as the economy operates closer to full employment, each additional unit of output becomes much costlier to produce. A much higher price is required to ensure that production remains profitable as reflected by the much larger increase in price from P_1 to P_2 . Such a situation where AD keeps shifting rightwards is typically associated with a booming economy with rising inflationary expectations, and hence the higher will be the resulting actual rate of inflation.

3.3.2 Cost-push Inflation

Cost-push inflation refers to a sustained increase in the general price level caused by persistent falls in aggregate supply (AS), independent of the level of AD. It is reflected by continuous upward shifts of the AS curve and/or leftward shifts of the AS curve. Sources of cost-push inflation include increases in prices of raw materials, wage-push inflation, import-induced inflation, tax-push inflation and profits-push inflation. Cost-push inflation basically means that prices have been "pushed up" by increases in costs of any of the four factors of production (labour, capital, land or entrepreneur).

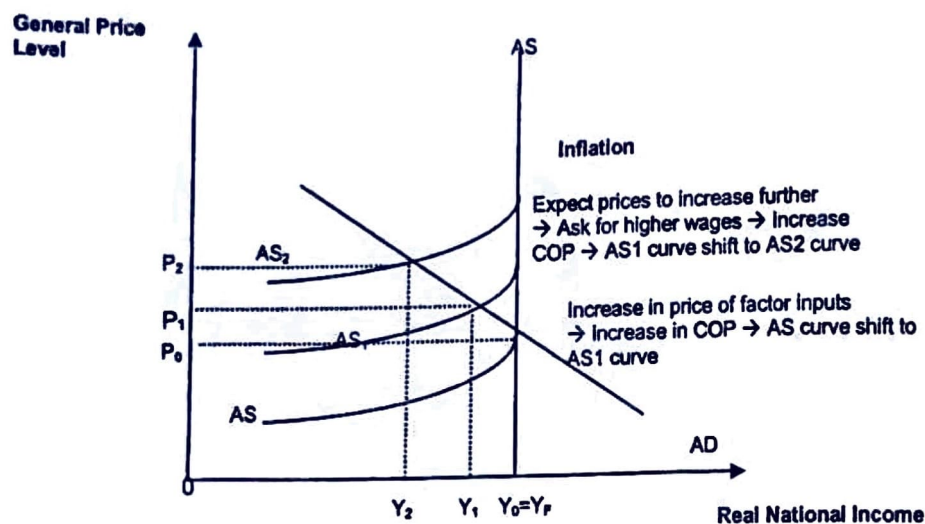


Figure 11: Cost-push Inflation

Figure 11 shows the economy initially in equilibrium with the price level at OP_0 and output at OY_0 . If there is an increase in the costs of production due to for example an increase in the price of oil, an important factor input in the production of many goods and services in the economy, the AS will fall. This is reflected by the AS curve shifting upwards from AS_0 to AS_1 . This will create shortages at the prevailing price level and firms will take the opportunity to raise prices. The increase in general price level will cause real national income to fall because spending for goods and services will fall due to the wealth, interest rate and international trade effects (and this is represented by a movement along the AD curve). The general price level will rise until the shortage is eliminated at the higher equilibrium price of OP_1 and a lower equilibrium level of income at OY_1 . In order for inflation to occur, the increase in general price level must persist over time. If workers expect prices to continue to increase, they will start asking for higher nominal wages to maintain their purchasing power and this will cause a further rise in the costs of production. This is reflected by a further upward shift of the AS curve from AS_1 to AS_2 . As a result, the general price level will increase further from P_1 to P_2 , resulting in higher cost-push inflationary pressures.

Sources of cost-push inflation include:

a. Inflation due to exhaustion of raw materials

The earth's natural resources like aluminium, copper, iron and steel, phosphate, coal, oil and natural gas are finite. This means that if we use them continuously, we will eventually exhaust them. As the supply of these natural resources fall, the price of these natural resources will increase. An increase in the price of natural resources which are major factors of production in the economy will increase costs of production. To maintain profit margins, firms will pass the increase in costs to consumers, resulting in higher consumer prices. If the increase in general price level is sustained, cost-push inflation will occur.

For instance, oil is used as a raw material in the production of a wide range of goods and services, including plastics, a wide range of petrochemical products and fuel to meet transportation needs. The severe shortages in oil markets 1973, in 1978, and again in late 1999 increased business costs of production and a sharp burst of cost-push inflation followed.

b. Import-Induced Inflation

Inflation may exist in a country through higher import prices. This could be due to **supply shortages or a weaker external value of the country's currency (currency depreciation)**. For example, from 1973 to 1974, inflation in Singapore was due to higher import prices particularly, import prices of fuel. The oil crisis started in 1973 when members of the Organisation of Arab Petroleum Exporting Countries (OPEC) proclaimed an oil embargo. More recently, overall inflation in Singapore rose to 3.2% in October 2021, its highest in more than 8 years, in part due to rising imported prices of global food commodities as well as rising energy prices.

A depreciation of the Singapore dollar against foreign currencies can also lead to higher imported inflation because the price of imported raw materials will increase in terms of Singapore dollars. *Ceteris paribus*, this will lead to an increase in the cost of producing final goods and services in Singapore, which is reflected by an upward shift of the AS curve. Firms will pass on the higher cost of production to consumers in the form of higher prices. In addition, a depreciation of the Singapore dollar will cause the price of imported final goods and services to increase, increasing cost of living in Singapore. Hence, a depreciation of the country's domestic currency against foreign currencies can result in cost-push inflation if the rise in the general price level is sustained. Import induced inflation can be damaging to economies like Singapore that rely heavily on imported raw materials and imported goods and services.



Overall inflation in Singapore rose to 3.2% in October 2021

c. Wage-push inflation

Cost-push inflation is usually regarded as being primarily a wage inflation process because wages constitute, by far, the greater part of total costs. The market power for some trade unions is so great that they can obtain **wage increases that are greater than the increase in labour productivity**. Wage increases in excess of productivity increases, however, will lead to increase in costs of production, with firms passing them on to consumers. If the increase in general price level is sustained, cost-push inflation will occur. In general, trade unions are more likely to succeed in their wage claims the closer the economy is to full employment and the greater the problem of skill shortages.

Wage-push inflation may result in **wage-price spiral** where wage increases cause prices of goods and services to increase as firms raise prices to protect their profit margins from rising costs. To prevent real wages from falling, wage-earners try to push their nominal wages upward to catch up with rising prices, resulting in a vicious cycle where "wages chase prices, and prices chase wages".



Workers in Europe are demanding higher pay as inflation soars

Wage-price spiral can also start due to a rise in aggregate demand combined with near full employment or due to supply shocks, such as an oil price hike.

d. Profits-Push Inflation

Dominant firms in markets can use their considerable market power to make bigger profits by pushing up prices well above their costs of production and independently of consumer demand. If there is a concentration of economic power over time (that is, if firms or unions become more dominant over time), this can lead to wages and prices chasing each other upward.

e. Tax-push Inflation

Tax-push inflation can be caused by increase in Goods and Services Tax (GST) in the case of Singapore. The rise in GST has the effect of increasing production costs, leading to a fall in AS. To maintain profit margins, firms will pass on the higher costs of production to consumers in the form of higher prices.

Section Summary:

- Demand-pull inflation is caused by continually rising AD, while AS remain constant or increasing at a slower rate. It is illustrated by persistent rightward shifts in AD along the intermediate to classical range of the AS curve. Factors affecting the components of AD (such as C, I, G, X) can cause demand-pull inflation.
- Cost-push inflation is attributed to higher unit costs of production which leads to a fall in AS and is reflected by the AS curve shifting upwards.
- It is possible that an initial inflation can result in a wage-price spiral, especially when an initial inflation causes cost of living to rise, and trade unions respond by demanding higher nominal wage for workers to maintain their real wage. Should firms succumb to the pressures of trade unions, firms face higher unit costs (assuming constant productivity), and AS falls (AS curve shifts up), resulting in an even higher general price level.

3.4 BENEFITS OF LOW AND STABLE / ANTICIPATED INFLATION

Inflation is a complex phenomenon which has effects on both the domestic and external economy. Its internal and external effects depend on the rate at which the general price level is rising (i.e. mild vs high inflation), whether it is anticipated or unanticipated and the underlying causes.

Central Banks typically aim to achieve low and stable inflation and avoid high and unstable inflation as well as deflation. A low and stable rate of inflation ensures exports remains competitive and it also reduces uncertainty, which increases consumer and investor confidence, vice versa. Central Banks, hence, need to manage inflation expectations in order to maintain stable prices.



Inflation
(Explorer Series)
By Monetary Authority of
Singapore (MAS)

a. Promotes investment and economic growth

If inflation is low & stable, firms will find it easier to predict changes in costs of production and prices and in turn profits more accurately which makes long-term planning easier for businessmen. In an environment of greater certainty, firms will be more willing to enter into long term contracts because they do not expect prices of factor inputs to increase quickly in the future. Hence, investment will increase. As AD rises, real national income increases and actual growth is achieved. The increase in investment will also lead to an increase in capital stock which in turn, increases the productive capacity or the AS of the economy. This is reflected by an outward shift of the AS curve. Potential growth is thus achieved. Potential economic growth is also accompanied by a dampening of inflationary pressures which further enhances economic growth.

b. Promotes international competitiveness and improve the BOT and BOP

Recall: The Balance of Payments (BOP) is a record of the receipts and payments arising from a country's transactions with the rest of the world over a period of time. The BOP comprises of the current account (which is made up of the balance of trade and income balance) and the capital/financial account (which records the flow of funds arising from inward and outward foreign direct investment (FDI) and the sale and purchase of portfolio investment between countries including "hot money" flows).

International competitiveness can refer to the price competitiveness and quality of exports, the attractiveness of the host country in attracting inward FDI and in attracting foreign talent.

If domestic inflation is lower relative to foreign inflation, this improves the price competitiveness of the domestic country's exports. Foreign countries will increase their demand for the relatively cheaper exports, hence raising export revenue. In addition, domestic households will demand less of the relatively more expensive imports and substitute them with domestically produced substitutes, thus reducing import expenditure.

Hence, the balance of trade position in the current account of the balance of payments for the country with relatively lower inflation rates will improve, *ceteris paribus*. If the country is initially operating with a balance of trade deficit, the country's balance of trade deficit will be reduced. *Ceteris paribus*, this will improve the country's current account and hence its balance of payments.

Foreign direct investment (FDI) is an investment made by a foreign investor in a host country, for instance, the setting up of factories by a foreign investor in a host country. Most of the relevant literature suggests that low and stable inflation results in **greater certainty** in the real returns on an investment, thus encouraging foreign investors to enter the economy, and consequently, a higher level of inward FDI. An inflow of funds will cause the country's capital/financial account position to improve. *Ceteris paribus*, its balance of payments will improve.

c. Promotes sustained economic growth and lower unemployment

As mentioned in point (a) and (b), low and stable inflation can bring about higher investment and export revenue. In addition, if households expect prices to rise slowly in the future, they will not have the incentive to hold back purchases of consumer goods and services. This will lead to a healthy level of consumption. An **increase in investment (I), exports (X) and a healthy level of consumption (C)** will in turn lead to an increase in AD because they are components of AD and this is reflected by a shift in the AD curve to the right. If the economy is operating below full employment and with sufficient excess capacity, the increase in autonomous aggregate demand can lead to a more than proportionate increase in real national income due to the multiplier effect which states that one person's spending is another person's income and income generates more spending, hence, actual growth is achieved. Demand-deficient unemployment will also fall because the demand for labour is a derived demand.

Moreover, the increase in investment brings about an increase in capital stock which leads to higher productive capacity, causing the AS curve to shift outwards, thereby achieving potential economic growth.

As the increase in aggregate demand is accompanied by the increase in aggregate supply, sustained economic growth can be achieved.

d. Economic agents can take actions to protect themselves to maintain current and future standard of living

Although inflation always reduce the value (or purchasing power) of money (or each unit of currency like a dollar) over time, if the inflation rate is mild, the value of the dollar will be eroded slowly. In addition, if the actual inflation rate corresponds to what economic agents are expecting (anticipated inflation), then they can take actions to protect themselves against rising inflation, thus the cost of inflation can be minimised.

For example, savers can maintain their future standard of living by choosing to put their funds in financial instruments that offer them a **nominal interest rate that is at least equal to the expected inflation rate**. As long as nominal interest rates rise in line with actual inflation rates, real interest rates and hence, the future value of savings can at least be maintained. Hence, a low inflation environment encourages domestic savings. (Note that the interest rates that banks quote to economic agents like firms and households are in nominal terms while economic agents base their decisions on real interest rates.)

Likewise, with low and stable inflation, workers are better able to negotiate contracts that ensure **nominal wage increment keeps up with inflation**. As long as nominal wage rates rise faster or in line with inflation rates, real wage rates and hence, purchasing power and in turn standard of living can rise or at least be maintained.

e. Improve efficiency in resource allocation

In a market economy, prices provide important signals to producers to guide their output decisions. For example, when a producer sees that the price of his product has increased faster than the prices of other goods and services, he would infer that the demand for his product has risen much more than the demand for other goods and services. As a result, he would devote more resources to produce a larger quantity of that product. It is through this price mechanism that the market efficiently allocates the economy's resources to their most productive uses. When inflation is low and stable, economic agents can **recognise changes in relative prices** between different goods and services more easily, without being confused by changes in the overall price level. This allows them to make well-informed decisions and to allocate resources more efficiently.

A low and stable inflation rate also promotes the efficient use of **productive investment**, such as investment in new machinery and equipment which increases real GDP, productivity and enables more new goods and services to be produced in the future. This is because when inflation is low and stable, people do not have to spend a substantial quantity of time and resources in search for mechanisms to defend themselves from the high inflation (for example, economic agents channelling more resources into existing residential housing, bonds and stocks which are generally considered unproductive or speculative because existing residential housing, stocks and bonds do not increase real GDP, productivity or produce new goods and services in the future). Instead, time and resources are channelled to productive investments which lead to better allocation of resources and actual and potential growth.

f. Increases the leeway for Monetary Policy

Monetary Policy refers to the use of money supply and/or interest rates to change the level of economic activity. Recall that the interest rates that banks quote to economic agents like firms and households are in nominal terms while economic agents base their decisions on real interest rates.

Detailed explanation of Monetary Policy will be covered under 'Macroeconomic Policies'.

Mild inflation increases the leeway for Monetary Policy. If the economy is heading towards a recession and inflation rate is still positive, the Central Bank can stimulate spending and boost growth by **lowering its nominal interest rate below the inflation rate** to make the real cost of borrowing negative to stimulate borrowing. Hence, a moderate level of inflation tends to ensure that nominal interest rates stay sufficiently above zero so that if the need arises, the bank can cut the nominal interest rates below the inflation rate. However, the Central Bank will not be able to cut nominal interest rates below the inflation rate if the inflation rate is zero.

3.5 COSTS OF HIGH AND UNSTABLE / UNANTICIPATED INFLATION

High and unstable inflation means that the general price level is rising rapidly over time and is volatile.

a. More difficult to protect material standard of living (SOL)

Inflation always reduces the value of money over time and the higher the inflation rate, the more significant the fall in the purchasing power of the dollar over time. High inflation can mean significant hardship for households whose **nominal incomes do not keep pace with the increase in prices**, such as retirees. Assuming that nominal income remains unchanged, high inflation significantly lowers the purchasing power of money or real income, which leads to a significant fall in households' ability to buy goods and services over time. Hence, households whose nominal incomes remain unchanged or rise much slower than inflation will experience a significant deterioration in their material SOL over time.



Venezuela Bolivar:
What Can It Buy
You?

b. Reduces investment which hinders potential economic growth

High and especially unstable inflation cripples long term business planning because it **creates uncertainty** about the future prices of factors of production and the future profitability of investment projects in the country. Firms will be less willing to take risks and hence, investment falls. The fall in investment can bring about a fall in capital stock which leads to a fall in productive capacity, as reflected by a leftward shift of the AS curve, thereby leading to a fall in potential economic growth.

In addition, when households are unsure of the future value of their savings due to uncertain inflation, they will have less incentive to save. As a result, the economy will end up with a lower level of savings. Less savings means less supply of loanable funds which will lead to a rise in interest rates (in other words, the price of loanable funds increase). The increase in interest rates will lead to a fall in investment as there will be fewer investment projects that will yield an expected rate of return that is greater than or equal to the higher interest rates. Hence, potential economic growth will fall.

c. Reduces international competitiveness and worsens the BOP

If **domestic inflation rises relative to foreign inflation**, this reduces the price competitiveness of the domestic country's exports. Foreign countries will reduce their demand for the relatively more expensive exports, hence reducing export revenue (X). In addition, domestic households will demand more of the relatively cheaper imports, thus increasing import expenditure (M). Hence, the balance of trade (X-M) position for the country with relatively higher inflation rates will worsen, *ceteris paribus*. If the country is initially operating with a balance of trade deficit, the country's balance of trade deficit will increase. Assuming the current account and balance of payments account are initially in a deficit, the increase in balance of trade deficit will lead to an increase in the current account deficit and hence, an increase in the balance of payments deficit, *ceteris paribus*.

A high and unstable inflation rate acts as a sign of internal economic instability. This is because it **increases uncertainty and reduces the confidence** of businesses in making investment decisions. A high inflation rate also impacts capital preservation of foreign investment. It affects profitability as higher prices can lead to increased costs and lower profits. Hence, the greater uncertainty in the real returns on an investment discourages foreign investors from entering the economy, and consequently, a lower level of inward FDI. If the country is initially operating with a capital/financial account deficit (meaning a capital/financial account net outflow), the country's capital/financial deficit in the balance of payments will increase, thus resulting in a worsening of the country's balance of payments, *ceteris paribus*.

d. Difficulty in sustaining economic growth

As mentioned in points (b) and (c), high and unstable inflation can bring about lower investment and export revenue. A **fall in investment (I) and exports (X)** decreases autonomous AD which can lead to a more than proportionate fall in real national income via the multiplier effect, hence bringing about a fall in actual economic growth and a rise in demand-deficient unemployment.

In addition, the fall in investment will affect the growth of the country's productive capacity and aggregate supply, leading to a fall in potential economic growth. Hence, a country suffering from high and unstable inflation will have difficulty sustaining its economic growth.

With unanticipated and unstable inflation, there will also be **increased speculative activity** as severe inflation encourages a **diversion of efforts away from productive activities** towards speculative and unproductive activities. This is also known as **shoe-leather costs**. "Shoe leather cost" refers to the opportunity cost of time and effort that people spend trying to counteract the effects of inflation. Since inflation reduces the value

of money, people will want to minimize their holdings of cash by making frequent trips to the banks and in the process, they wear out their shoes. The higher the inflation, the higher the shoe-leather costs. In such instances, firms and households will have more incentive to engage in unproductive activities such as investing in residential housing (which tend to yield attractive returns during high inflation). Diverting investment funds into assets that provide a hedge against inflation may benefit those who own them, but it does not benefit the economy as a whole in the future as it represents investment in non-productive assets. In addition, such speculative activities do not benefit the economy but only fuel an unsustainable increase in residential housing prices. Exaggerated expectations of gains from investing in residential housing will encourage people to borrow to finance their purchase of residential housing. When prices of residential housing eventually collapse, borrowers will default on their loans which may lead to banking crises which hurts growth.

(Note that even if inflation is fully anticipated, agents must still make more trips to the bank to keep their nominal balances in line with the rising price level.)

e. Arbitrary Redistribution of Income worsening Income Distribution

Unanticipated inflation will cause an arbitrary redistribution of income. When inflation is unanticipated, income receivers will face difficulty in adjusting their nominal incomes to take into account inflation rates because what they predict often turns out to be wrong. Hence their ability to take actions to mitigate the adverse effects inflation will have on their real income falls. In most cases, there will be some who gain and some who lose as a consequence of the redistributive effect.

i. Fixed Income Earners Vs Variable Income Earners

Fixed-income earners are people whose nominal income has not increased with inflation. People like pensioners and fixed salaried workers will be worse off because with a fixed nominal income, their real income will decline rapidly with high inflation and they are able to buy fewer goods and services than before.

Variable income earners, on the other hand, refer to people whose incomes are directly related to prices. People like the producers and businessmen may benefit from inflation because rising prices may mean higher profits for them. This is especially the case during mild inflation, the prices of goods and services rise faster than the rise in costs of production. Equity holders who own shares which do not give a fixed rate of return may also benefit from inflation as the higher the profits earned by producers, the greater will be the dividends paid out to these equity holders.

ii. Workers in Strong Trade Union Vs Workers in Weak Trade Union

Wage-earners may benefit from inflation if their nominal wages increase faster than the increase in the general price level. For example, if nominal wage increases by 10% and general price level increases by 3%, then there is an increase in real income of about 7%. This may be true of workers in expanding industries or workers who are represented by strong trade unions. On the other hand, some wage earners, especially those in declining industries or without strong trade union support may be hurt by inflation if their nominal incomes do not rise as fast as the inflation rate.

iii. Debtors vs Creditors

Assume that a loan of a specified sum is stated in money terms and that nominal interest rate is fixed.

Unanticipated inflation brings about uncertainty and reduces the ability of economic agents to take various actions to protect themselves. It will benefit the debtors (borrowers) at the expense of the creditors (lenders or savers). Creditors will be worse off because

inflation reduces the real burden of the debt. The principal sum they receive from the debtor will be less in terms of purchasing power. For example, a \$1000 loan is now only worth \$500 in real terms if the general price level has doubled. Likewise, in cases when the inflation rate is greater than the nominal interest rate charged, the gain to the debtor is greater because he is actually paying back less interest in real terms than the amount expected at the beginning of the loan period.

However, if inflation is anticipated, the inflation rate will be taken into account by the banks when working out the nominal interest rate to be charged for a loan. If the inflation rate is correctly anticipated, then the creditors will not suffer a loss in future purchasing power as real interest rate remains constant during inflation.

iv. Holders of financial assets versus those with physical or real assets

Holders of physical assets (e.g. houses, land, gold etc) gain from inflation as the money value of these assets change directly with the price level i.e. an increase in the general price level will lead to an increase in the value of these physical assets.

However, holders of financial assets (e.g. fixed interest earning securities such as government bonds, cash) will lose out as income received in real terms declined, since interest payment is not adjusted with inflation.

f. Significant Menu Costs

When inflation is high, prices of goods and services need to be changed more frequently, which incurs higher cost. **"Menu costs"** refer to the cost of constantly revising and reprinting price lists as firms have to constantly adjust the prices of goods and services that they sell. In the broader context, menu costs might include updating computer systems, retagging items, hiring consultants to develop new pricing strategies and so on. Menu costs leads to an increase in cost of producing final goods and services which will cause the aggregate supply curve to shift upwards, aggravating cost-push inflation as firms pass on the higher costs of production to consumers in the form of higher prices. For the same money income, when the general price level increases, people's ability to buy consumer goods and services falls and hence, their material standard of living falls.

(Note that prices must still be changed as well, even if the inflation is anticipated. Firms will still have to remark goods or reprogram computers as the price level rises.)

g. Hinders efficient resource allocation

High and unexpected inflation makes it difficult to distinguish between changes in the price of a specific product and changes in the overall price level. As such, the producer could mistake a rise in the overall price level for an increase in the price of his own product, and hence erroneously devote more resources to produce it. Hence, high and unexpected inflation results in inefficient allocation of resources.

h. Wage-price spiral causing a breakdown in the functions of money

If inflation develops into 'hyperinflation', with prices rising perhaps by several hundred per cent or even thousands per cent per year, the whole basis of the market economy will be undermined. Firms will constantly raise prices in an attempt to cover their soaring costs. Workers will in turn demand huge pay rises in an attempt to stay ahead of the rocketing cost of living. Prices and wages, thus, chase each other in an ever-rising inflationary spiral. People will no longer want to save money. Instead they will spend it as quickly as possible before its value falls any further. People may even resort to barter in an attempt to avoid using money altogether. In less severe situations, people may prefer to use the currency of a foreign country which has a lower stable rate of inflation.



14 Million Bolivars for a Chicken: Venezuela Hyperinflation Explained



Venezuelans Bartering Food, Cigarettes to Pay for Gas Amid Inflation



Hyperinflation or just higher inflation – How worried should people be?

Section Summary:

- High inflation implies that general price level rises rapidly, to the extent that price increases cannot be easily anticipated by economic agents like consumers and producers.
- High and unanticipated rate of inflation have several undesirable consequences. For example, high inflation can slow economic growth and cause unemployment due to lower AD (eg due to fall in X and I) owing to loss of export competitiveness and lack of certainty respectively. High inflation can cause BOP problems too when X and FDI are adversely affected.
- In view of the several undesirable consequences of high and unanticipated inflation, governments in general aim to achieve a low rate of inflation, whereby prices rise at a slower rate and in a more predictable manner. Some governments have even chosen low inflation to be the top priority aim, because the attainment of low inflation can help the economy attain other macroeconomic aims.
- Whether inflation is a cause for concern depends on:
 - the level and duration
 - its causes
 - anticipated or unanticipated
 - comparison to other countries

3.6 DEFLATION

Deflation occurs when there is **sustained decrease in general price level**, i.e. negative rate of inflation. This should not be confused with disinflation, a slow-down in the inflation rate (i.e., when inflation rate declines to lower levels). Hence, deflation is a period when the general price level falls, i.e. the basket of goods and services becomes less expensive over time. This allows one to buy more goods with the same amount of money over time.

Well-known deflation periods over the last hundred years have been related to economic crises: the United States during the Great Depression of 1929-1933, Japan 1990-2006, and Hong Kong following the Asian financial crisis of 1998-2004.

3.7 CAUSES OF DEFLATION

Economists generally believe that deflation is a problem because it is normally associated with a **fall in aggregate demand (AD)**, which may be attributed to a variety of causes such as a decrease in domestic consumption or a fall in foreign demand for exports etc.

However, an **increase in aggregate supply (AS)** can also cause deflation. For example, the falling oil price lowers costs of production, leading to increases in aggregate supply and hence, deflation. In rare circumstances, rapid growth in technology may enable lower prices, whilst at the same time increasing output. Inflation can be considered benign here as the fall in price is accompanied by an increase in output.

3.8 CONSEQUENCES OF DEFLATION

Under the circumstances of falling economic growth rates and wage levels, deflation is somewhat of a relief for the consumers since general price levels are falling. However, deflation can be a serious problem for the economy if a deflationary spiral develops, supported by expectations of further deceleration of the economy and price reductions.

a. Deflation is not undesirable from the following perspectives:

- i. Deflation can be good for an individual. Assuming that the money income of the individual remains constant, the fall in the general price level leads to an increase in his/her purchasing power and in turn, his/her ability to consume more goods and services. Hence, his/her standard of living improves.



Why is Japan's Economy Shrinking?



YouTube: A Japanese Lesson in Deflation for Europe

- ii. When it is due to workers and firms being more productive, hence resulting in goods and services being produced at lower costs (AS curve shifts downwards and/or outwards).
- b. Deflation is undesirable from the following perspectives because:

- i. A deflationary spiral can develop which affects economic growth and employment. This is because if households expect prices to fall in the future, they will hold back their purchases now and this will lead to a fall in autonomous consumption which will in turn lead to a leftward shift in the aggregate demand curve because autonomous consumption is a component of aggregate demand. Likewise, if firms expect sales to fall in the future, they will cut back on investment now which will in turn lead to a leftward shift in the aggregate demand curve because investment is also a component of aggregate demand. The fall in autonomous AD can bring about a more than proportionate fall in real national income via the multiplier effect. Hence actual growth will fall, *ceteris paribus*. If the fall in aggregate demand leads to a recession, then demand-deficient unemployment will rise because the demand for labour is a derived demand. Hence, deflation can lead to a negative spiral where consumers reduce expenditure in anticipation of falling prices, which in turn reduces the profitability of companies and some may end up shutting down, resulting in increased unemployment and in turn a further fall in consumer spending.
- ii. Deflation can increase the real burden of debts. As the nominal interest rate of debt is typically fixed, when incomes and prices fall, the real burden of debts increase. The higher real debt mountain can be a drag on consumer confidence and hence the willingness to spend.
- iii. Deflation is harder to solve than inflation. Generally speaking, the interest rate reflects the price of consumption today relative to consumption tomorrow. When interest rates are high, savings are worth more tomorrow, and vice-versa. The return in money terms (the rate advertised by banks) is called the "nominal" interest rate. But inflation also matters. Subtracting expected inflation from the nominal rate produces the real interest rate—the expected return after inflation—which is what people respond to in most models of the economy.

To combat high inflation, a Central Bank can generally raise nominal interest rates as high as needed. In addition, if the economy is heading towards a recession and inflation rates are still positive, the Central Bank can stimulate spending to boost growth by lowering its nominal interest rate below the inflation rate to make the real cost of borrowing negative. For example, if the inflation rate is 3%, the government can lower nominal interest rate to 2%. The real interest rate will then be -1%. This reduction in the real cost of borrowing can stimulate investment and consumption since firms and consumers can borrow practically free money. Real interest rate is the interest rate that has been adjusted to remove the effects of inflation to reflect the real cost of funds to the borrower.

This strategy of lowering its nominal interest rate below the inflation rate, however, is difficult if inflation itself is zero or negative. Conventionally, the Central Bank cannot lower nominal interest rates below zero because that would mean reducing savers' bank balances every month and would prompt them to withdraw their deposits from banks and stash cash under the bed. Hence during deflation, the real interest rate will always be positive, making it impossible for the Central Bank to intervene using interest rate policy. For example, if the inflation rate is -3%, even if the nominal interest rate is at 0%, the real interest rate will be positive at 3%. Deflation can make the real cost of borrowing higher, adversely affecting interest-sensitive spending by firms and



The case of Japan's curiously quiescent inflation rate

households. Hence, there is no leeway for monetary policy to work when the economy is experiencing a recession that is accompanied by falling prices. This is the dreaded deflation trap.

Section Summary:

- A deflation can be caused by persistent fall in AD or a continual rise in AS.
- A deflation caused by falling AD brings about falling general price levels and is usually regarded in bad light. This is due to the negative/falling rate of economic growth and higher demand-deficient unemployment that comes with the falling AD.
- However, deflation due to rises in AS (eg. due to fall in unit costs) may be considered good, because the falling GPL is accompanied with a rising real output.
- Deflation can be good for the individual, but if everyone reduces their spending, then companies could fail and people could lose their jobs.
- Still, whether a deflation translates into undesirable consequences over time depends greatly on consumers' and producers' *expectations* on price falls.

4 EXCHANGE RATES AND BALANCE OF TRADE

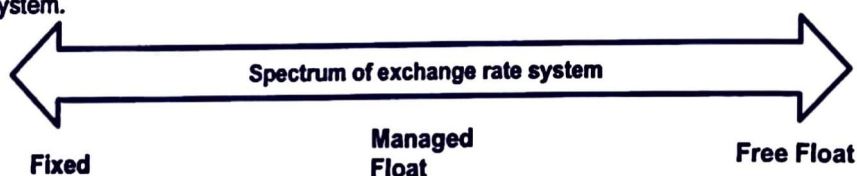
Besides internal stability, countries also aim to achieve external stability which include stability in exchange rates (ER) and favourable Balance of Trade (BOT).

ER stability is important in facilitating international transactions between countries. To ensure ER stability, some countries operate on a fixed or managed float ER system. **Favourable BOT** typically refers to the avoidance of large and persistent BOP deficits and surplus.

4.1 EXCHANGE RATE DETERMINATION – TYPES OF EXCHANGE RATE SYSTEMS

Exchange rate is the price of one country's currency in terms of another currency or a basket of foreign currencies.

Countries may adopt different exchange rate systems depending on the economic situations that are unique to each individual country. In general, there is a spectrum of exchange rate systems ranging from the free float (free market) to the fixed exchange rate system.



4.1.1 Free-floating Exchange Rate System

In a freely float exchange rate market, the market exchange rate is determined by the interaction of market demand for and supply of a country's currency. There is no intervention by the Central Bank in a free-floating exchange rate system, and the rate of exchange is fully determined by demand and supply forces in the market for the currency, known as the foreign exchange market (forex market). The free market ensures that the quantity demanded for the currency is always equal to its quantity supplied.

a. Demand for a currency

Consider the demand for US dollars (domestic currency) in the foreign exchange market. There are three main sources of demand for the US dollar (US\$) by foreigners. They include:

- Foreign firms/consumers that buy goods and services produced in US

- Foreign firms/households that want to invest in US either through foreign direct investment - buying or building production facilities, or through foreign portfolio investment - buying financial assets issued in US
- Currency traders (speculators) who expect the US dollar to appreciate against other foreign currencies, like the British pound, in the future.

The demand curve for the US dollar in the forex market is downward sloping. This means that a fall in the price of the domestic currency (US\$) in terms of a foreign currency (e.g. S\$) leads to an increase in the quantity demanded of US\$, ceteris paribus.

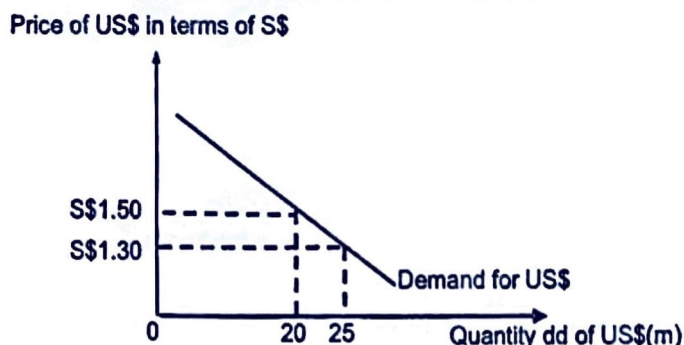


Figure 12: Demand curve for US\$ in the Forex market

With reference to Figure 12, assume the price of US\$ falls from S\$1.50 to S\$1.30. Ceteris paribus, this will lead to a rise in quantity demanded for US\$ as US exports become cheaper, cost of investment in US is lower and if speculators (they buy low and sell high) expect the US\$ to rise in value in the future. Collectively, this may increase quantity of US\$ demanded from US\$20m to US\$25m. Thus, a fall in the price of domestic currency leads to a rise in its quantity demanded, ceteris paribus.

b. Supply of a currency

Consider the supply of US dollars. There are three main sources of supply of US dollar (S\$) in the foreign exchange market. They include:

- US firms/consumers that buy goods & services produced by the rest of the world
- US firms/households that want to invest in the other countries either through foreign direct investment or foreign portfolio investment
- Currency traders (speculators) who expect the US\$ to depreciate against foreign currencies, like the S\$, in the future.

The supply curve of US\$ in the foreign exchange market is upward sloping. This means that a rise in the price of US\$ in terms of a foreign currency (e.g. S\$), ceteris paribus, leads to increase in its quantity supplied.

As shown in Figure 13, when the price of US\$ (domestic currency) rises from S\$1.30 to S\$1.50, ceteris paribus, exports from Singapore become cheaper in US\$, investment in Singapore costs less in US\$. Thus, US residents will buy more exports from Singapore and increase their investment in Singapore and to do so, they need to buy more S\$. As US residents buy more S\$, this collectively increases the quantity supplied of US\$ as US residents will sell more US\$ to exchange for S\$ to finance such expenditure. Hence, as the price of US\$ rises, the quantity supplied of US\$ rises too, ceteris paribus.

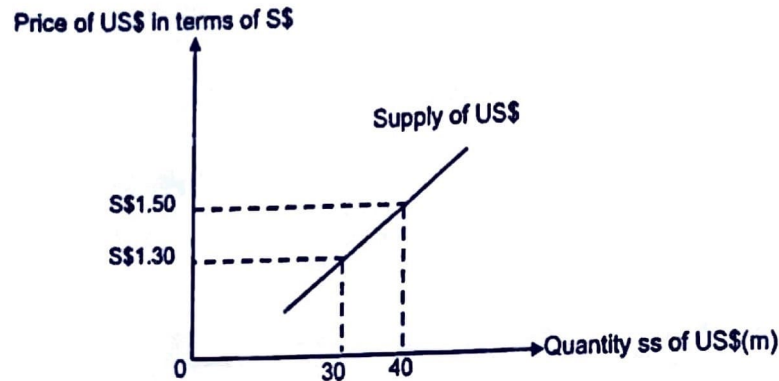


Figure 13: Supply of US dollar in the Forex market

The free market equilibrium ER is reached when the quantity demanded for US\$ equals the quantity supplied for US\$ (i.e. the demand curve for US\$ cuts the supply curve for US\$).

c. Factors affecting the exchange rate of a currency

i. Changes in the Demand for a Currency (US\$)

The following factors can cause the demand for a currency in the foreign exchange market to change i.e. shift the demand curve for a currency.

(a) Changes in the demand for US goods & services by foreigners.

During an economic expansion in Singapore (foreign country), the incomes of Singapore residents will rise and the demand by Singapore consumers and firms for US (domestic) goods will increase. This results in an increase in the demand for US dollars as more US\$ are required by the British to pay for the higher volume of imports from US. Consequently, the demand for US dollars increases. This causes the demand curve for US\$ to shift to the right, and the US\$ will appreciate against the S\$, ceteris paribus.

Conversely, a recession in Singapore which causes their household incomes to fall will reduce the demand for US goods. This causes the demand for US\$ to fall, and the demand curve to shift to the left. The fall in the demand for US\$ will result in a depreciation of the US\$ against the S\$, ceteris paribus.

(b) Changes in the relative interest rates between countries

If interest rate in the US rises relative to other countries' interest rates, ceteris paribus, the returns from investing in US's financial assets (such as bonds or saving money in US banks) are relatively higher. This raises the demand for US dollars and shifts the demand curve to the right. Ceteris paribus, the US dollar appreciates against the other currencies.

On the other hand, if the interest rate in US falls relative to other countries' interest rates, the returns from investing in US's financial assets will decrease relative to the returns from investing in other countries' financial assets. As a result, the demand for US's financial assets will fall. This causes the demand for US dollars to fall as well. With a leftward shift of the demand curve, ceteris paribus, the US\$ depreciates against the other currencies.

(c) Changes in the expectations of currency traders / speculators about the future value of currencies

The expectations of the currency traders are affected by the expected future performance of US economy, political stability, interest rates or even fiscal policy and other macroeconomic measures implemented by the government.

Fact:
59 percent of the world's currency reserves are held in US dollars, more than double the combined foreign holdings of Euros, Yen and Yuan.

A reserve currency is a foreign currency that is held in significant quantities by Central Banks as part of their foreign reserves.

If they are convinced that the US dollar is going to appreciate against the S\$ in the future, the speculators will sell S\$ and buy US dollars. *Ceteris paribus*, the demand for US\$ increases, thereby shifting the demand curve to the right. This causes the US dollar to appreciate.

II. Changes In the Supply of a Currency (US\$)

The following factors can cause the supply of a currency in the foreign exchange market to change i.e. shift the supply curve of a currency.

(a) Changes in demand for foreign produced goods and services by Singaporeans

Changes in tastes and preferences will affect the country's demand for imports and foreigners' demand for its exports. For example, if US residents now prefer to buy imported (Singapore) goods as compared to locally produced goods, this will increase the demand for imports, hence increasing the supply of the US\$ in the foreign exchange market. This has the effect of shifting the supply curve to the right. Hence, the US dollar will depreciate against the S\$.

(b) Changes in relative interest rates between countries

Changes in relative interest rates will also affect the exchange rate of a currency. For example, if interest rates in US fall relative to interest rates in Singapore, it will be more desirable for US residents to invest in Singapore's financial assets. Thus more money will flow out from US to Singapore. This is known as short-term capital outflow. The supply of US\$ in the foreign exchange market increases. The rightward shift of the supply curve causes the US\$ to depreciate against the S\$.

(c) Changes in the expectations of currency traders / speculators about the future value of currencies.

Speculators are people who trade in currencies in order to make capital gains. If the speculators expect the US dollar to depreciate against the S\$, they will sell their holdings of US\$ now to buy S\$. This will increase the supply of the US\$ in the foreign exchange market, shifting the supply curve to the right. Hence, the US\$ will depreciate against the S\$.

d. Adjustment to a New Equilibrium

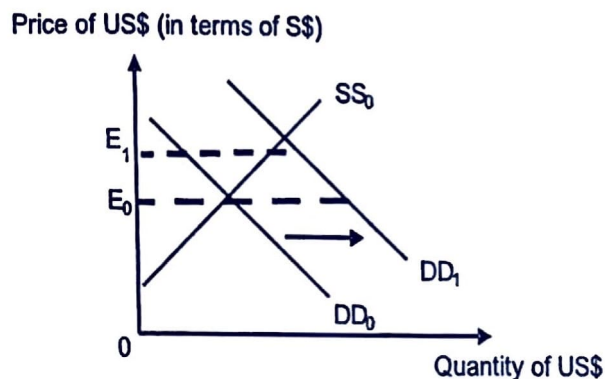


Figure 14: Demand for and Supply of US\$ in the Forex Market

With reference to Figure 14, the increase in demand for US\$ causes the demand curve to shift to the right from DD_0 to DD_1 . At the original price level E_0 , there is a shortage as quantity demanded of US\$ exceeds quantity supplied of US\$ in the forex market. This exerts an upward pressure on the price of US\$ and the price of US\$ will eventually

increase to the new equilibrium price E_1 , where the shortage will be eliminated. As such, the price of US\$ has appreciated against the S\$.

The above illustrates the market adjustment process in a free floating exchange rate system.

Section Summary:

- Exchange rate is the value of one country's currency in terms of another currency.
- The market exchange rate is determined by the interaction of demand for and supply of a country's currency.

4.1.2 Fixed Exchange Rate System

In a fixed exchange rate system, the central bank intervenes in the forex market to control the exchange rate at a fixed rate by using its foreign reserves to influence the demand and supply of its domestic currency.

For instance, an increase in demand for Chinese exports will cause the demand for Chinese Yuan to increase in the forex market since foreigners who demand Chinese exports will pay for the Chinese exports in terms of Chinese Yuan. With reference to Figure 15, this causes the demand for Chinese Yuan to rise from DD_1 to DD_2 . In a free market, the yuan would have appreciated against the US\$ from e_1 to e_2 . However, the Chinese central bank can fix the exchange rate at e_1 by increasing the supply of the Yuan in the forex market. This is done by buying (meaning demanding) more USD in the forex market. When the Chinese Central Bank sells more yuan in the forex market now, the supply of yuan increases from SS_1 to SS_2 . This increase in supply prevents the yuan from appreciating to e_2 . Instead, a devalued exchange rate of e_1 is maintained.

Price of Yuan in terms of US\$

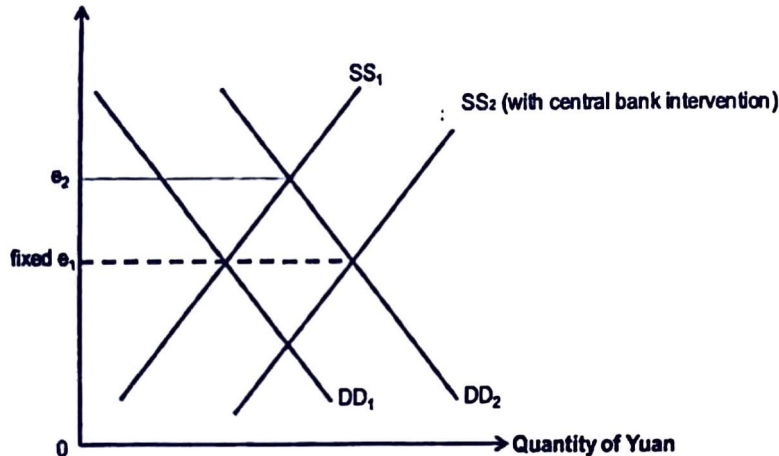


Figure 15: Fixed Exchange Rate

4.1.3 Managed-float Exchange Rate System

A managed-float exchange rate regime is a system of flexible exchange rates but where the Central Bank intervenes to prevent excessive fluctuations in its ER. Thus, there is an acceptable band (the size of which varies among countries) whereby the exchange rate is allowed to fluctuate in the foreign exchange market before intervention by the Central Bank begins. Many countries use some form of a managed-float exchange rate system instead of the theoretical extremes of the freely floating or fixed exchange rate systems.

The Chinese yuan was pegged at 8.28 to the USD from 1994 to mid-2005, after which China adopted a slightly more flexible exchange rate system.

Think:
What are the benefits of operating a fixed ER regime?



Countries with fixed exchange rate systems

Refer to lecture notes on 'Macroeconomic Policies' for reasons why Singapore intervenes in the foreign exchange market.

Figure 16 shows how a managed float exchange rate system works and expresses the price of the Singapore dollars in terms of US dollars for simplicity. It shows that the external value of the Singapore dollar is determined by the market demand and market supply of Singapore dollars within specified limits or a target band, for example, between E_U and E_L . To prevent the Singapore dollar from depreciating below E_L , the Monetary Authority of Singapore (Singapore's Central Bank) will intervene directly in the foreign exchange rate market to buy or demand Singapore dollars and sell US dollars (by running down on its existing foreign reserves). To prevent the Singapore dollars from appreciating above E_U , the Monetary Authority of Singapore will sell or supply Singapore dollars in the foreign exchange market and buy US dollars (and accumulates foreign reserves).

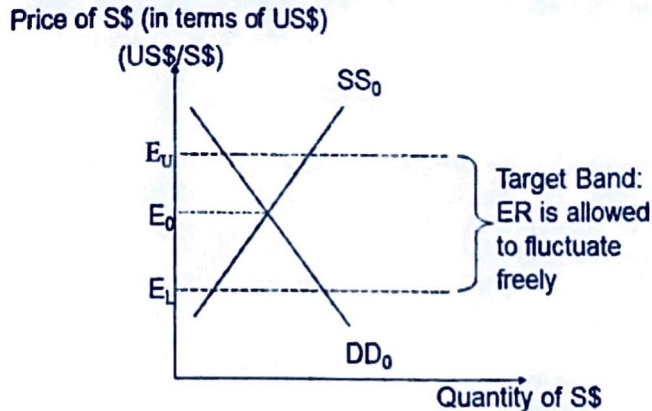


Figure 16: A Managed Float Exchange Rate System

More details on how and why the Singapore central bank manipulates the Singapore dollar will be taught under the upcoming lecture series on *Exchange Rate Policies*.

Section Summary:

- There is a spectrum of exchange rate systems ranging from free float to the fixed exchange rate system.
- There is no government (central bank) intervention in the forex market when it comes to the free-floating exchange rate system, which is the case for the USD and Euro.
- In a fixed exchange rate system, the government (central bank) intervenes in the forex market to control the exchange rate at a fixed rate by using its foreign reserves to influence the demand and supply of its currency.

4.2 EXCHANGE RATE STABILITY - CONSEQUENCES

Exchange rate stability refers to **avoidance of excessive fluctuations in exchange rates**. Exchange rates tend to be more unstable under freely float exchange rate system than fixed or managed float exchange rate system.

- a. **Reduction in uncertainty about exchange rate can lead to improvement in capital/financial account and promote sustained economic growth**

A country may decide to fix or peg its domestic currency to another foreign currency to create a **stable atmosphere for foreign investment**. This is because with a peg, a foreign investor will always know what his or her investment's value is. Since he or she will not have to worry about daily fluctuations in the ER, this can lead to an increase in inward FDI in the domestic country. An increase in inward FDI can improve the capital/financial account and in turn, the balance of payments. When the inward FDI involves setting up new factories or building new plants in the domestic country, the level of investment in the domestic country increases, promoting both actual and potential economic growth.

- b. **Fixed ER regimes, however, can often lead to severe financial crises because they are difficult to maintain in the long run.**

This was seen in the Mexican (1995), Asian (1997) and Russian (1997) financial crises. When the Central Banks of these economies could no longer maintain the peg because they were running out of foreign reserves, speculation and panic followed. Investors scrambled to get their money out of the country and convert it into foreign currency. The result was a wave of currency depreciations and stock market declines. In Mexico, the Central Bank was forced to allow the peso to depreciate by 30%. In Thailand, the Central Bank eventually had to allow the currency to float, and by the end of 1997, the Thai Bhat had lost 50% of its value as the foreign exchange market's demand and supply readjusted the value of the local currency.

- c. **Foreign reserve accumulations also entail opportunity costs.**

Most industrialised countries mandate that the foreign reserves accumulated should be invested in highly liquid assets such as short-term financial bonds and government securities (meaning they should be able to convert these assets to cash easily). These highly liquid assets, however, generally yield relatively low rates of return compared with returns on alternative uses of the funds. Therefore, this reflects an opportunity cost of maintaining the foreign reserve funds in highly liquid assets.

- d. **Fixed ER regimes can also be inflationary if the domestic country tries to maintain an ER below the free market ER.**

For instance, in order for China to maintain the external value of its yuan below the free market ER, the Chinese Central Bank has to sell its domestic currency (yuan) and buy foreign currencies in the foreign exchange market. This has the effect of injecting liquidity (or increasing money supply) into the Chinese economy. If the Chinese economy is already operating close to full employment, the increased liquidity will aggravate inflationary pressures in China which is undesirable.

Section Summary:

- Exchange rates tend to be more unstable under freely float exchange rates system than fixed or managed float ER system.
- Stability in ER can lead to an improvement in the balance of payments on the capital/financial account and promote actual and potential economic growth.
- Fixed ER regimes can often lead to severe financial crises because a peg is difficult to maintain in the long run, as well as being inflationary if the domestic country tries to maintain an ER below the free market ER.

4.3 BALANCE OF TRADE

The Balance of Trade (BOT), also known as the trade balance, refers to the value of the difference between export revenue and import expenditure over a given period of time. Sometimes the balance of trade between a country's goods and the balance of trade between its services are distinguished as two separate figures. The balance of trade, which is part of the Current Account, is quite often the largest component of a country's balance of payments (BOP) - (BOP is the record of a country's international transactions which involve flows of money between residents of a country and the rest of the world). A favourable BOT position typically refers to avoidance of a large and persistent BOT deficit or surplus.

The following two tables provide a summary of Russia's and Singapore's BOP. In Russia, the main components of the BOP are the current account, capital and financial account. There is no reserve assets account because the country has a free-floating exchange rate system (Table 1).

Table 1: A Summary of Russia's BOP for 2020 (in million US\$).

A Current Account Balance	36,004
Goods Balance	93,735
Services Balance	-17,045
Primary Income Balance	-35,005
Secondary Income Balance	-5,680
B Capital and Financial Account Balance	39,743
Capital Account	519
Direct Investment	-3,632
Portfolio Investment	25,296
Financial Derivatives	1,950
Other Investment	29,378
Reserve Assets	-13,768
C Net Errors and Omissions	3,739
D Overall Balance (A-B+C)	0
E Reserve Assets Account	0

Adapted from Central Bank of the Russian Federation

In Singapore, the main components of the balance of payments are the current account, the capital and financial account, and the reserve asset account because the country has a managed float exchange rate system (Table 2).

Table 2: A Summary of Singapore's BOP for 2020 (in million S\$).

A Current Account Balance	82,488.8
Goods Balance	129,203.1
Services Balance	20,524
Primary Income Balance	-57,339.3
Secondary Income Balance	-9,899
B Capital and Financial Account Balance	-19,851.9
Direct Investment	-75,981.9
Portfolio Investment	71,028.3
Financial Derivatives	19,094.6
Other Investment	-33,992.5
C Net Errors and Omissions	975.80
D Overall Balance (A-B+C)	103,316.5
E Reserve Asset Account	103,316.5

Adapted from Singapore Department of Statistics

4.3.1 Causes of Balance of Trade Deficit and Surplus

For a trade-dependent country like Singapore, the following factors can heavily affect our overall balance of trade position.

a. Changes in Global Conditions

i. Cyclical Changes in Global Demand

The business cycles in Singapore and its trading partners affect its trade balance. For example, when there is a recession in the US, the loss in incomes and consumer

confidence reduce the ability of US residents to buy Singapore's exports. Demand for Singapore's exports will fall, assuming US's demand for Singapore's exports has a positive income elasticity (i.e., $YED_{SG\ exports}^{US} > 0$). The higher the value of the income elasticity of US's demand for Singapore's exports, the greater the fall in demand for Singapore's exports when US income falls. Ceteris paribus, Singapore's balance of trade will worsen. If Singapore is initially operating with a balance of trade surplus, Singapore's balance of trade surplus in the current account will fall. If the import expenditure rises above the export revenue, Singapore's balance of trade surplus in the current account will turn into a deficit, ceteris paribus. Similarly, an economic boom in our trading partners will cause a rise in demand for our exports, leading to BOT surpluses.

II. Sustained Economic Growth in the Importing Country

One potential cause of a persistent balance of trade deficit is that of sustained economic growth. Growth in an economy is indicated by a sustained rise in its real GDP, which increases the ability and willingness of its residents to purchase imported goods and services. Ceteris paribus, the growing economy's balance of trade and in turn its current account will worsen. If the economy is initially operating with a balance of trade surplus, the economy's balance of trade surplus in the current account will fall. If the import expenditure rises above the export revenue, the economy's balance of trade surplus in the current account will turn into a deficit, ceteris paribus.

The extent to which import expenditure increases as a result of an increase in real national income depends on the marginal propensity to import of the country. This concept can be defined as the proportion of an additional unit of income that will be spent on imported goods. If the marginal propensity to import is high, then a rise in income (characterised by economic growth) will have a larger effect on the current account deficit than if it is low, since a high MPM implies that the level of imports will vary closely with changes in income. The UK population has a characteristically high MPM, so the current account deficit is far more sensitive to growth rates than other countries.

b. Changes in International competitiveness

'Structural changes due to shifts in comparative advantage², changes in tastes and preferences or relative inflation rates can cause a country's international competitiveness to be affected.

i. Changes in Comparative Advantage

For example, Singapore lost its comparative advantage in low- to medium-end manufacturing to other developing countries in Asia such as Vietnam and China as the abundant labour in these countries allowed them to manufacture products at a **lower opportunity cost**. Subsequently, the global demand for low- to medium- end manufactured exports shifted from Singapore to neighbouring emerging countries. This reduced the export revenues in Singapore's trade balance. Fortunately for Singapore, new areas of comparative advantage were developed in the higher value industries such as biomedical and financial services, boosting foreign demand for exports of related goods and services. Global demand for biomedical products and financial services shifted to Singapore. This served to increase export revenue and more than overcome the effect of falling exports of low- to medium-end manufactured products, sustaining and increasing Singapore's balance of trade surplus.

ii. Changes in Taste and Preference

² A country has comparative advantage over another country in the production of a good if it can produce the good at a lower opportunity cost (i.e., it forgoes less of other goods in order to produce the good). Countries typically specialise in and export goods they have comparative advantage in, and import goods they do not have comparative advantage in. This will be fully covered in 'Globalisation and the International Economy'.

The trade balance may also be affected by long-term structural changes in the pattern of demand for their exports. If a country is slow to adapt to changes in taste and preferences, the demand for its exports will be competed away by other countries. If export revenue falls below import expenditure, a balance of trade in the current account deficit will occur, *ceteris paribus*. The balance of trade deficit in the current account will persist so long as the country is unable to reallocate its resources to adapt to these structural changes.

iii. Changes in Relative Inflation Rates Between Countries

If domestic inflation rises relative to foreign inflation, this reduces the price competitiveness of the domestic country's exports. Foreign countries will reduce their demand for the relatively more expensive exports, hence reducing export revenue. In addition, domestic households will demand more of the relatively cheaper imports, thus increasing import expenditure. Hence, the balance of trade position in the current account of the balance of payments for the country with relatively higher inflation rates will worsen, *ceteris paribus*.

c. Changes in Exchange Rates

Exchange rates also affect the international competitiveness of exports. An overvalued currency or an appreciation³ of a country's domestic currency against foreign currencies reduces export competitiveness and can cause its balance of trade surplus to be smaller or its balance of trade deficit to be bigger.

For instance, an appreciation of the British pound means that more units of foreign currencies are needed to purchase one British pound. Hence, the appreciation of the British pound against foreign currencies will make UK's exports more expensive in terms of foreign currencies, thereby causing a fall in its quantity as foreigners' ability to buy UK goods and services fall. The extent to which quantity for UK's exports fall depends on the price elasticity of demand for exports (PED_x), which subsequently determines the extent to which export revenue (measured in British pounds) will fall.

Key point:
An appreciation of ER will cause the value of net exports to fall assuming M-L condition holds.

At the same time, the appreciation of the British pound also causes its imports to be relatively cheaper in terms of domestic currency (British pounds) because fewer British pounds are needed to buy the same amount of foreign currency, resulting in an increase in quantity for imports as UK's ability to buy foreign goods and services increases. Whether import expenditure (measured in British pounds) will rise or fall depends on the price elasticity of demand for imports (PED_m measures the extent to which quantity demanded of imports rises when the price of imports fall, *ceteris paribus*.)

According to **Marshall-Lerner's condition**⁴, so long as the sum of PED_x and PED_m is greater than one ($|PED_x + PED_m| > 1$), even if each individual PED coefficient is less than one, an appreciation will worsen the value of net exports (X-M), hence worsening UK's balance of trade (BOT).

Conversely, a depreciation will improve the BOT if the Marshall-Lerner's condition holds.

d. Government Policies

Trade policies have direct impacts on the trade balance. **Protectionism**⁵, which refers to policies of sheltering domestic industries from foreign competition through the imposition

³ An appreciation occurs when a unit of currency can exchange for more foreign currencies, which means that there is an increase in the value of a currency.

⁴ Deriving or proving the Marshall-Lerner Condition is not necessary in the A Level Syllabus. Knowledge of the condition and how it affects the impact of exchange rate changes on the trade balance is sufficient. More will be taught in the lecture series on *Exchange Rate Policies*.

⁵ Specific protectionist policies and their impacts will be covered in '*Globalisation and the International Economy*'.

of trade barriers on imports, tends to improve the BOT of the countries who implement protectionist policies, while worsening the BOT of the exporting countries.

Other government policies may also have indirect impact on the balance of trade. Industrial policies intended to help a country industrialize may involve heavy importation of technological and capital goods. *Ceteris paribus*, the country's balance of trade will worsen. If the country is initially operating with a balance of trade surplus, the country's balance of trade surplus will fall or turn into a deficit.

f. Random factors / Shocks

Unanticipated and unpredictable factors like war or natural disaster that destroy the infrastructure of the economy could worsen the BOT. Not only would exports fall due to the cessation of production activities halting supply of exports, but the country may also have to increase its imports of capital goods and consumption goods to rebuild the economy. *Ceteris paribus*, the country's balance of trade will worsen. If the country is initially operating with a balance of trade surplus, the country's balance of trade surplus will fall or turn into a deficit.

Causes of Capital and Financial Account Net Inflow / Outflow of Funds

The capital and financial account includes records of long-term fixed capital movements and also short-term capital flows. Inflow and outflows of foreign direct investment (FDI) is a key determinant of the capital and financial account position. However, in countries with developed and sophisticated financial sectors such as Singapore, short-term financial flows also take up a large proportion of the account. Changes in the expected rate of return, international competitiveness, and global demand conditions tend to affect the flow of long-term fixed capital flows, such as FDIs. On the other hand, changes in the relative interest rates, expected exchange rates, and the exchange control regulations tend to affect short-term financial capital flows.

a. Changes in Expected Rate of Return

The level of foreign direct investments (FDI) depends on the expected rate of return to the foreign investors' investment. This takes into account the cost of production, the amount of government subsidies (if any) and the tax policies of the country. The lower the cost of production, the greater the subsidies, and/or the lower the corporate tax rates, the greater the expected returns and thus the greater the inflow of FDIs.

If the expected rate of return on investment projects in the domestic country falls relative to that in other countries, this results in a fall in profitability from investments locally, hence there will be less inflow of FDIs. At the same time, local businesses may choose to invest directly abroad, resulting in FDI outflows. *Ceteris paribus*, the capital and financial account will worsen. If the country is initially having a net inflow in the capital and financial account position, the country's capital and financial account position will deteriorate as the net inflow of funds is reduced or have a net outflow of funds.

In addition, a fall in a country's domestic interest rates relative to those in other countries would result in short-term net capital ('hot money') outflow, *ceteris paribus*. This is because speculators all over the world will prefer to withdraw their money from the country's banks and deposit them in other countries in order to reap greater returns to their deposits. *Ceteris paribus*, the capital and financial account will worsen.

b. Changes in Relative Inflation Rates between Countries

Note: Causes of change in KFA position are covered for complete coverage of BOP which is necessary for Theme 3.3 – Globalisation and the International Economy

If a country's inflation rate increases and becomes relatively higher than other investment destination countries, not only would costs of production increase, there would also be uncertainty of profits as well. Unstable prices resulting from higher inflation rates make prediction of returns to investment difficult. This uncertainty will discourage FDI inflows, while encouraging FDI outflow to countries with lower and more stable inflation rates. *Ceteris paribus*, the capital and financial account will worsen. If the country is initially having a net inflow in the capital and financial account position, the country's capital and financial account position will deteriorate/worsen as the net inflow of funds is reduced or have a net outflow of funds.

c. **Changes in Global Demand Conditions**

FDIs flow into countries with rising consumer demand. An increasing consumer demand boosts the confidence of foreign investors to invest. If a country experiences a trend of increasing economic growth associated with rising affluence and/or increasing population, foreign investors would be attracted to set up production facilities in light of the expectations of profits. Foreign investments may also invest in countries that have a large export base, such as Singapore. Although the local consumer base is small due to Singapore's small population, our large export base attracts foreign investors who can export their products to a large foreign consumer base from Singapore. Thus, a growing consumer or export demand could improve a country's capital and financial account. If the country is initially operating with a net outflow in the capital and financial account position, the country's capital and financial position will improve as the net outflow of funds is reduced or have a net inflow of funds.

d. **Changes in Relative Interest Rates**

Other things being equal, a fall in a country's domestic interest rates relative to those in other countries would result in short-term net capital ('hot money') outflow. This is because speculators all over the world will prefer to withdraw their money from the country's banks and deposit them in other countries in order to reap greater returns to their deposits. The *ceteris paribus* effect of this is a worsened capital and financial account.

e. **Changes in Expected Exchange Rates**

Destabilizing speculation and capital flight may occur when there is expectation of a depreciation of the domestic currency. When speculators expect the exchange rate of domestic currencies to depreciate, they will sell the domestic currency to purchase foreign currencies. When there is a net outflow of funds from the domestic economy to other countries, the domestic country's capital and financial account will worsen, *ceteris paribus*. If the country is initially having a net inflow in the capital and financial account position, the country's capital and financial account position will deteriorate as the net inflow of funds is reduced or have a net outflow of funds.

f. **Exchange Control Regulations**

Some countries may originally exercise exchange control regulations which restricts the amount of currency flowing overseas. When these controls are removed, there is likely to be a large outflow of currency as investors try to diversify and take advantage of investment opportunities overseas and hence the capital and financial account will worsen, *ceteris paribus*.

4.3.2 Consequences of a Balance of Trade Deficit

a. **Implications on Economic Growth and Standard of Living**

When a country runs a BOT deficit, it means that the country is paying more for its imports of goods and services than it is earning through exports. A BOT deficit typically translates to a fall in AD (due to $(X-M)$ component of AD falling). This would cause a fall in real NY, generally hurting actual growth and job creation in the deficit-running country, negatively affecting SOL. This view summarises the complaints US politicians have especially with China, the country with which the US runs its largest bilateral trade deficit. This deficit was the primary reason that Former US president Donald Trump launched a trade war against China. Trump argued that by cutting its trade deficit, it would create jobs in US and strengthen its economy.

The balance of trade influences currency exchange rates through its effect on the supply and demand for foreign exchange. If a country imports more than it exports in the case of a BOT deficit, there is relatively less demand for its currency, so prices should decline. In the case of currency, it depreciates or loses value. A weaker currency makes import prices higher. This lowers the country's standard of living as they will have to pay more for imported fruits, vegetables, and other groceries. That erodes your purchasing power over time (see 4.4 for detailed explanation on how BOP deficit affects exchange rates).

b. Implications on Equity

A country can finance its balance of trade deficit by running a capital and financial account surplus (meaning net inflow in the capital and financial account) and/or running down on its foreign reserves.

If the country relies and borrows from foreign countries to finance its current account deficit, eventually, the **external debt** (principal plus interests owed to foreigners) need to be paid back, and this has implications on its economic growth and standard of living, equity.

A large and persistent BOT deficit can mean future generations will be burdened with high debt levels and large interest payments. This results in **intergenerational inequity** as the large foreign debt burden falls on households in the next generation in return for increased consumption today.

c. Opportunity Costs

Repayments of external debt used to finance BOT deficits also have an opportunity cost because the **interests owed to foreigners might be better used in supporting development policies** such as investment in health and education to boost the human capital of the population.

The use of official foreign reserves to finance trade deficits raise similar issues about the opportunity cost of alternative uses of foreign reserves if it were not spent on financing trade deficits.

4.3.3 Consequences of a Balance of Trade Surplus

If a country has a BOT surplus, the impact depends on the size of the BOT surplus and the reasons for the surplus.

a. Implications on Economic Growth and Standard of Living

In the event that a country runs a BOT surplus, it now means that the country is receiving more for its exports of goods and services than it is paying for imports. A BOT surplus will lead to a rise in AD (due to $(X-M)$) causing a rise in real NY, generating actual growth and job creation in the surplus-running country.

Similarly, there is relatively higher demand for its currency with a BOT surplus, causing the currency to appreciate in value. The stronger currency will make imported goods and



What is a Current Account Deficit and Why it is a Worry for Countries like Turkey

services cheaper, allowing a greater purchasing power for its residents; improving standard of living.

However, a country may have a large BOT surplus because of a weak economy where consumer spending and spending on imports is low. The country could also enjoy a potentially higher material welfare if more imports are consumed.

b. Accumulation of Foreign Reserves

If the BOT surplus leads to an overall BOP surplus, it may lead to an accumulation of foreign reserves. Should the country adopt either a managed float or fixed exchange rate system, the relatively higher demand for the country's currency will create pressure for the currency to appreciate. However, to prevent the currency from appreciating (too quickly), the country's central bank has to sell its currency in exchange for foreign currency in the forex market, hence resulting in the accumulation of foreign reserves.

c. Possible Retaliation by Trade Partners

A large BOT surplus can be a controversial political issue – especially if other countries feel the surplus is a result of an undervalued exchange rate. When a country's currency is undervalued, its trade balance will improve at the expense of its trading partners' trade balance. Some economists have argued the excess BOT surplus of Germany and China have resulted in lesser output and jobs in countries with BOT deficit. Therefore, deficit countries may be forced to resort to imposing import controls which will reduce the imports to their country and reduce the trade deficit. For example, the BOT deficit in the US is attributed to the large imports of cheap Chinese products. This led to the US pressurising China to let the Yuan appreciate as well as imposed tariffs on products such as Chinese steel and tires. Then US president, Donald Trump also declared a trade war with China in 2018, imposing tariffs on over US\$500bn of Chinese goods.

4.3.4 Types of Exchange Rate Systems and Their Effects on BOP Positions

The consequences of a balance of payments which can arise from trade disequilibrium will vary according to the exchange rate regime a country operates in. Exchange rates can be freely floating, fixed, or managed, as discussed in section 4.2.

a. Freely Float Exchange Rate System

Under a freely floating exchange system, the **balance of payments will always be in equilibrium** because a BOP surplus or deficit will be automatically eliminated via **adjustments by the exchange rate mechanism**.

Inflow of funds registered in the BOP constitutes the demand for a currency in the forex market. For instance, foreigners must buy US currency (USD) in order to purchase US's exports. Foreign investors must also convert foreign currencies to USD in order to conduct FDIs in the US. Conversely, outflow of funds constitutes the supply of a currency in the forex market. For example, US residents have to exchange USD for foreign currencies in the forex market in order to purchase imports, increasing the supply of USD in the forex market. Thus, inflows constitute demand of a country's currency, while outflows constitute supply of the currency.

Since the free market equilibrium means that quantity demanded will always equal to quantity supplied of the domestic currency, this means that inflows are equal to outflows on the BOP such that the BOP is in equilibrium.

Scenario 1:

Assume that the BOP in the US is in equilibrium initially. If interest rates in the US rose relative to interest rates in foreign countries, there will short-term capital flow into US as

foreigners deposit their money in US in search for relatively higher returns on their savings resulting in an inflow of funds to the capital and financial account. This inflow constitutes an increase in demand for USD as deposits need to be saved in the local currency. At the same time, US citizens will reduce their flow of short-term investments overseas, as they prefer to keep their deposits in US. This reduces the supply of USD in the forex since less USD is being exchanged for foreign currencies to be deposited overseas. With reference to Figure 17, demand for USD rises from DD_1 to DD_2 while supply falls from SS_1 to SS_2 , creating a shortage of USD in the forex market. At the same time, the BOP goes into a surplus since the relative rise in interest rates causes net inflow of funds to the capital and financial account in the BOP.

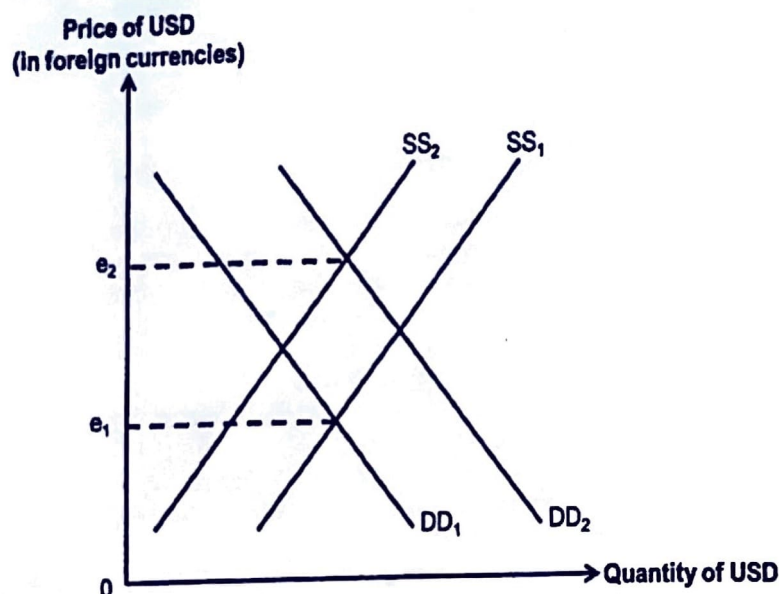


Figure 17: Demand for and Supply of US Dollar (USD) in the Forex Market

However, in a freely floating exchange rate system, a BOP surplus is only temporary. Because of the shortage in the forex market, there will be an upward pressure on the US exchange rate that causes the USD to appreciate against foreign currencies. As the USD appreciates, exports from US become more expensive in terms of foreign currency, while imports become cheaper for US citizens. Assuming Marshall-Lerner condition holds such that sum of PED_x and PED_m is greater than one ($|PED_x + PED_m| > 1$), the balance of trade worsens as the USD appreciates. This adjustment occurs until a new equilibrium exchange rate is reached at e_2 and the current account deficit cancels out the BOP surplus arising from the net inflow of funds in the capital and financial account. Both the forex market for USD and the BOP would be in equilibrium eventually as a result of the automatic adjustment of the exchange rate mechanism. A BOP surplus is corrected by the appreciation of the exchange rates. Likewise, a BOP deficit is corrected by a depreciation of the exchange rate.

Scenario 2:

Assume that the BOP in the US is in equilibrium initially. Should foreign investors find US assets or US as a destination for foreign direct investment (FDI) particularly attractive, this implies more capital is flowing into the country (than going out), caused by an increase in foreign ownership of domestic assets resulting in an inflow of funds to the capital and financial account. This increases the demand for the currency, which would result in an appreciation of the exchange rate and resulting in US experiencing a balance of trade deficit assuming the Marshall Lerner condition holds. The trade deficit is the consequence of increased investment / FDI in US assets due to the automatic adjustment of the exchange rate on the trade balance and the BOP surplus would eventually be in corrected. Alternatively, should US's relative appeal to foreign investors fade resulting in an outflow of funds from the capital and financial account, resulting in a BOP deficit, the

US dollar would weaken and depreciate due to a fall in demand for the currency and the trade deficit would shrink assuming the Marshall Lerner condition holds and the BOP would be in equilibrium eventually.

Implication of an appreciation of the exchange rate

An appreciation of the exchange rate can have both positive and negative effects on the economy, especially if the appreciation of the exchange rate is significant. A possible negative effect that stems from an appreciation of the exchange rate is the "Dutch Disease" effect. The "Dutch Disease" effect originally referred to the decline of Netherland's manufacturing sector as a result of its booming exports of natural gas. The discovery of natural gas in the North Sea allowed the Netherlands to turn its balance of payments deficits into surplus through increasing export revenues from natural gas exports. This BOP surplus, however, led to an appreciation of the Dutch currency, making Dutch goods more expensive for foreign buyers. Dutch manufacturing industry found it difficult to compete in the world market because of this loss of competitiveness.

Countries that rely on natural resources to drive its growth may thus have difficulty ensuring that its growth is inclusive and sustainable. This is because the increase in exploitation of natural resources accompanied by the decline in the manufacturing sector (or de-industrialisation) tends to lead to higher unemployment as the manufacturing sector is typically more labour intensive than the natural resource industries. Extraction of natural resources like oil, diamond, copper is extremely capital intensive. In addition, given increasing returns and costly and time-consuming learning in manufacturing, the economy will struggle to rebuild its sources of growth upon depletion of its natural resources.

Likewise, depreciation of the exchange rate can also have both positive (e.g. exports become more competitive) and negative adverse (e.g. higher imported inflation) effects on the economy.

b. Fixed Exchange Rate System

In a fixed exchange rate system, the Central Bank **uses its foreign reserves to influence the demand and supply of its currency**, resulting in movements in the official reserves account. Assume that the BOP in China is in equilibrium initially. A rise in demand for Chinese exports would improve the trade balance, and lead to a BOP surplus. At the same time, the increase in demand for exports will lead to an increase in demand for Yuan which causes a shortage at the original ER. Hence there is an upward pressure on Yuan. To prevent the appreciation of Yuan, the Chinese central bank has to sell Yuan and buy more foreign currency in the forex market, hence resulting in the accumulation of foreign reserves.

Under the fixed exchange rate system, its BOP disequilibrium is not corrected and the BOP can remain in a persistent surplus (or deficit) for as long as the exchange rate remains fixed below (or above) the free market equilibrium rate.

[Please refer to section 4.4 and 4.5 for the consequences of a persistent BOP deficit and surplus respectively].

c. Managed Float Exchange Rate System

If the BOP disequilibrium results in an appreciation or depreciation of the currency within the **allowable exchange rate band or target band**, then the exchange rate adjustment in the forex market will correct the BOP disequilibrium. However, if the BOP disequilibrium puts a pressure on the currency to appreciate or depreciate beyond the acceptable band, then the central bank will intervene to maintain its exchange rate. This will result in the persistence of the BOP deficit or surplus and causes movements in the official foreign reserves to accommodate the BOP disequilibrium.

4.4 BOP DEFICIT AND EXCHANGE RATE

In a freely floating exchange rate system, a BOP deficit will be temporary because it will be automatically eliminated by the depreciation of the exchange rate.

The BOP deficit will persist, however, in a fixed or managed-float exchange rate system, where exchange rates are not at the free market equilibrium level but fixed above the free market equilibrium exchange rates. To fix its ER above the free market level, the Central Bank sells foreign currencies and buy its domestic currency to prevent its domestic currency from depreciating. This means that the central bank is **running down on its official foreign reserves to accommodate its BOP deficit**. However, the rundown on foreign reserves compromises the country's ability to ward off potential speculative attacks on its domestic currency in the future. Furthermore, the reserves could run out. If the foreign reserves run out, the Central Bank will have to relax its control of the currency and let it depreciate, and this would reduce the consumers' ability to import consumer goods and services, and producers' ability to import raw materials

If the foreign reserves run out or if the Central Bank chooses not to deplete the reserves, it may borrow foreign currencies from international financial institutions such as the International Monetary Fund (IMF) or from other countries. However, this creates an external debt for the country that will need to be repaid in future.

4.5 BOP SURPLUS AND EXCHANGE RATE

In a freely floating exchange rate system, a BOP surplus will be temporary because it will be automatically eliminated by the appreciation of the exchange rate.

The BOP surplus will persist, however, in a fixed or managed-float exchange rate system, where exchange rates are not at the free market equilibrium level but fixed below the free market equilibrium exchange rates. To fix its ER below the free market equilibrium, the Central Bank buys foreign currencies and sells its domestic currency to prevent its domestic currency from appreciating. This means that the central bank is **accumulating official foreign reserves to accommodate its BOP surplus**.

i. Accumulation of Foreign Reserves due to the Undervaluation of Exchange Rate

The build-up of the official foreign reserves and can lead to greater confidence in the economy as accumulation of foreign reserves enables the country to **ward off potential speculative attacks on its domestic currency in the future**.

However, the undervaluation of exchange rates represents a **forgone opportunity for citizens to consume more imports and increase their standard of living**. When the exchange rate is undervalued, imports will appear relatively more expensive to domestic consumers. Thus, the quantity of imports consumed and enjoyed by domestic consumers decreases, compromising their standard of living.

ii. Retaliation (Protectionism)

As a BOP surplus is maintained with an undervalued currency, a country could be accused of being a currency manipulator that practices unfair trade. Refer to section 4.3.4 Consequences of a BOT Surplus. The deficit countries may be forced to resort to imposing import controls which will reduce the imports to their country and reduce the trade deficit. This is detrimental to world trade. The consequences of such protectionist policies will be fully covered under 'Globalization and the International Economy'.



Nigeria Vows to Keep Firm Grip on Naira Even as Reserves Bleed



These are the Economies that Hold the Most Foreign Currency



US no longer considers Switzerland a currency manipulator

Section Summary:

- The main factors affecting the Balance of Trade include changes in global demand conditions, changes in international competitiveness/relative inflation, and changes in exchange rates.
- BOT surpluses/deficits can have implications on countries' economic growth and living standards, balances on the official foreign reserves and on its relationship with its trading partners.
- Disequilibrium in the BOP is automatically corrected in a freely floating exchange rate system. However, the BOP disequilibrium persists in a fixed (and possibly a managed float) exchange rate system.
- Under a fixed/managed-float exchange rate system, a persistent BOP deficit could result in the depletion of the official reserves, as well as creation of external debt if official reserves were to run out.
- A persistent BOP surplus results in an accumulation of the foreign currencies in the official reserves. Countries having persistent BOP surpluses may be accused of being currency manipulators and attract retaliation measures by other countries.

*****END*****

APPENDIX 1 – THE NATURAL RATE OF UNEMPLOYMENT

The natural rate of unemployment refers to a combination of frictional and structural unemployment that persists in an efficient, expanding economy when labour and resource markets are in equilibrium. The percentage of the labour force that is frictionally or structurally unemployed is typically a positive and low rate, and it is the natural rate of unemployment. Full employment in an economy means reaching this rate of unemployment. If unemployment rate is higher than the natural rate, then the economy is also experiencing cyclical unemployment.

The natural rate of unemployment is sometimes known as the non-accelerating inflation rate of unemployment (NAIRU), which is the unemployment rate at which prices of goods and services does not rise disproportionately. Unemployment rate cannot be reduced below the NAIRU as further increases in aggregate demand would only lead to inflation, rather than a reduction of the unemployment rate.

APPENDIX 2 – WHY DEFLATION IS BAD

(SOURCE: THE ECONOMIST, 7 JAN 2015)

Prices in the euro zone are falling. Figures released on January 7th showed that consumer prices in the year to December fell by 0.2%, marking the return of deflation for the first time since 2009. Weak demand, driven by austerity, debt and a lack of economic growth is dragging down prices. The falling oil price is making things cheaper, too. One might think falling prices would be something to celebrate. But concerns about deflation traps and downward spirals abound. The European Central Bank may launch a programme of quantitative easing this month to fend off the threat.

Why do economists so dread falling prices?

One common explanation is that in anticipation of falling prices, consumers delay purchases, causing them to fall still further. This argument is a simplification; it can be made with equal power in reverse to argue that inflation will inevitably run upwards as consumers bring purchases forward to avoid being stung later. But the argument hints at the right problem: deflation's effect on interest rates. Generally speaking, the interest rate reflects the price of consumption today relative to consumption tomorrow. When interest rates are high, savings are worth more tomorrow, and vice-versa. The return in money terms (the rate advertised by banks) is called the "nominal" interest rate. But inflation also matters. Subtracting expected inflation from the nominal rate produces the real interest rate—the expected return after inflation—which is what people respond to in most models of the economy.

Low inflation or deflation constrains this crucial variable. The nominal interest rate cannot fall below zero, because that would mean reducing savers' bank balances every month, and would prompt them to withdraw their deposits from banks and stash cash under the bed. Together with inflation, this puts a floor on the real interest rate too. If inflation is low and real rates can't fall far enough to boost demand and perk up prices, demand will weaken still further. This is the dreaded deflation trap. There are other problems, too. Lower-than-expected inflation increases the real burden of debts. Lenders benefit, but because they are more likely to save than borrowers, demand is sapped overall. Deflation also increases rigidity in the labour market. Workers are resistant to wage cuts in cash terms, but inflation lets firms cut real wages by freezing pay in nominal terms. Deflation, by contrast, makes this problem worse.

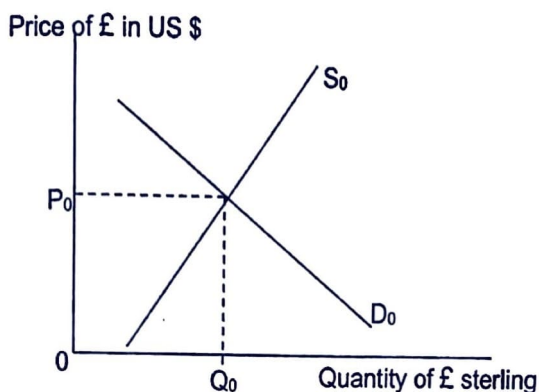
To avoid the trap, central banks can resort to unconventional policies such as quantitative easing, although there is debate over their fairness and efficacy. In the long run, some economists think inflation targets should be higher. That would give more room for real interest rates to fall when economies are hit by negative shocks. But in a few decades, the problem may disappear: in a cashless economy it is impossible to stash money under the bed. That would allow nominal interest rates to go negative, as everyone's bank balance could simply be reduced simultaneously. But that might be easier said than done.

RAFFLES INSTITUTION YEAR 6 H2 ECONOMICS 2023

TUTORIAL PACKAGE

Section A: Structured Questions

1. Explain how the following factors will affect economic growth:
 - (a) A fall in investment
 - (b) A rise in wage
 - (c) A rise in labour productivity
2. The diagram below shows the market for sterling (£) in terms of US dollars (\$).



Explain with the aid of a diagram what would happen to the value of the Sterling (in terms of US\$) if

- a) There is a sudden rise in interest rates in the US.
- b) The US economy recovers from a prolonged recession.
- c) The British develop a sudden preference for all things American.
- d) The US experiences a higher rate of inflation relative to the UK.

Section B: Case Study Questions

Question 1:

China overtakes Japan as world's second-largest economy

Table 1: Growth in real gross domestic product: % change per annum

	2005	2006	2007	2008	2009
China	+9.9	+11.1	+11.4	+9.6	+8.7
Japan	+1.9	+2.0	+2.4	-1.2	-5.2

Source: various

Table 2: Total trade in goods: US\$ at current prices (millions)

		2005	2006	2007	2008	2009
China	Exports	761 953	968 978	1 220 456	1 430 693	1 201 534
	Imports	659 953	791 461	956 116	1 132 567	1 005 688
Japan	Exports	594 941	646 725	714 327	782 047	580 719
	Imports	515 866	579 064	622 243	762 534	551 960

Source: World Trade Organisation

Extract 1: China growth slows as Beijing applies the brakes

China's first interest rate rise in over two years this week was a further bid to curb rising inflation, which was 3.6% for the third quarter of 2010, well above the official target of 3%. Analysts reacted largely positively to the data, judging that a short-term risk in slowdown in demand from China was offset by the long-term need to tackle rising inflation. They said that the surprise interest rate move was a reflection of the underlying strengths of China's economy.

'In the short term the slowdown means China will demand less goods from the rest of the world,' said a China analyst. 'But in the long term, the slowdown could be a benefit to the world economy because the Chinese economy cannot keep growing at such a high pace and in such an unbalanced way.'

The strength of the economy may also give China more room to accommodate demands from Europe and the US to allow its currency, the yuan, to appreciate further. Pressure is growing in the US, where lobby groups accuse China of under-valuing its currency by up to 40% and costing millions of US jobs.

The yuan has risen by just 2.6% since June, when Beijing scrapped its peg with the US dollar, a move the US has said is insufficient. However, some analysts said the latest data suggested that China's economy could now withstand faster appreciation.

This week China's leaders met to discuss a new five-year economic plan for 2011-2015 that is aimed at creating more sustainable growth, raising the share of wages and spreading investment inland from the traditional coastal manufacturing hubs. Most forecasts show GDP growth slowing to an average of about 7.5% by 2015.

Source: *Daily Telegraph*, 21 October 2010

Extract 2: China's growth past, present and future

China overtook Japan as the world's second-largest economy during the second quarter of 2010. With its economy growing at around 9% a year, some experts now expect China to outstrip the United States as soon as 2030. In contrast, the faltering Japanese economy grew by just 0.1% in the three months to June 2010. Japan's GDP of US\$1.28 trillion was surpassed by China's GDP of US\$1.33 trillion.

China's spectacular growth since the introduction of free-market reforms three decades ago has seen it racing up the world league of economic powers. Just 10 years ago, it was the sixth largest in the

world but has since outstripped Britain and France in 2005 and Germany in 2007. It overtook Germany as the world's largest exporter in 2009.

A leading economist said: 'Clearly it was inevitable, it was just a question when it would happen – just as it pretty inevitable in the long run that it will be bigger than the US as well, because it has four times the population.'

For Japan, the figures reflect the continued decline of a nation that has held the second spot since 1968, when it overtook Germany, the result of Japan's remarkable rise as a manufacturing and financial giant after the Second World War. But the 'economic miracle' came to an abrupt end in the early 1990s when a property bubble burst. What followed was a lost decade, and the country has never fully recovered. Today, it faces deflation, an ageing and decreasing population and only minimal growth.

China's rapid growth has not come without a cost, causing huge social upheaval, including large-scale migration from the countryside to cities, which are growing at an unprecedented rate. China's urban population is expected to almost double by 2025, when it will have 221 cities with populations of more than 1 million, compared with 35 cities in Europe.

The economic growth figures also mark huge disparities of income in China, which has a population of 1.3 billion; the UN estimates that 300 million have been lifted from poverty since the reforms began, but while luxury boutiques spring up in Shanghai and Beijing, hundreds of millions still live in severe hardship, particularly in rural areas. Japan's people, on the other hand, are still among the richest in the world, with GDP per capita of US\$39 700, compared with US\$46 400 in the US and just US\$3600 in China.

The rapid advances in China have also led to environmental problems: in 2006, the country overtook the US as the largest emitter of greenhouse gases. This month, the government in Beijing ordered more than 2000 high-polluting, unsafe or energy-inefficient plants to shut down within two months. The growth of China has made it hungry for natural resources and energy, driving up the cost of primary commodities.

There are also concerns that the global economy has become unbalanced, with huge trade deficits between China and the developed world. China is said to make four-fifths of the world's toys and almost three-fifths of its clothing. Developed economies are hopeful that China will become a market of UK exports. Critics in the US and Europe argue that China is benefiting unfairly because it keeps its currency, the yuan, artificially low, benefiting its exporters.

China's growth is expected to slow progressively to around 3.5% to 4% in 20 years' time. This is in part because of an ageing population, due to its one-child policy, as well as increasing pressures on wages and a growing reliance on domestic demand as exports slow. There have recently been a series of high-profile strikes at Honda and other factories in southern China, as workers demand better wages and work conditions.

Source: www.guardian.co.uk, accessed 16 August 2010

Extract 3: China's economy: an accident waiting to happen?

The news that the Chinese economy has finally overtaken Japan's has attracted more comment in the west than inside China itself. 'I didn't see any dancing in the streets,' said the managing director of a Beijing-based consultancy. 'Most Chinese people who pay any attention to these things have known it was going to happen for a long time. In time they will be the biggest economy, which makes sense given that they have the most people. The world we have been living in for the past century and a half has been unusual in that China and India have not been the biggest economies, which is what they were for most of the last 2000 years. In the sense this is a return to the normal situation.'

But there is still caution about the country's prospects despite the sense of inevitability. Some see China as an accident waiting to happen, warning that its growth is not sustainable. Economists are concerned that the country is too dependent on exports and investment, and have spoken repeatedly of the need to boost domestic consumption, though with little obvious result. Wages have declined

substantially as a share of GDP over the last two decades.

Looking to its neighbor may reinforce rather than offset China's concerns. If the scale of Japan's economy has helped to spur on China's effort to surpass it, its stagnation has also offered an alarming reminder that rising powers enjoying spectacular growth rates are not always as unstoppable as they might look.

Source: *The Guardian*, 16 August 2010

Questions

- (a) (i) Compare the change in China's balance of trade in goods with that of Japan between 2005 and 2009. [2]
- (ii) How might this comparison explain the differences in growth rates between the countries shown in Table 1. [2]
- (b) Explain how 'the long-term need to tackle rising inflation' in China might cause 'a slowdown in demand from China' for the rest of the world's economies. [3]
- (c) Explain how the world economy might become less unbalanced through an appreciation of the yuan. [2]
- (d) Explain why there might be concern that the Chinese economy is so dependent on exports and investment. [3]
- (e) With reference to the data, assess the costs and benefits of aiming for lower growth rates in China. [8]
- (f) Discuss the view expressed in both Extract 2 and Extract 3 that China will eventually grow to become the world's largest economy just because it has the greatest number of people. [10]

[30 marks]

Question 2: Bangladesh's quest for inclusive economic growth

Table 1: Bangladesh, selected economic indicators (2000–2014)

	2000	2005	2010	2014
population (millions)	131.3	142.9	151.6	159.1
real GDP (US \$billion)	44.2	57.6	77.3	98.6
inflation rate (% change in Consumer Price Index (CPI) per annum)	2.2	7.0	8.1	7.0
fiscal balance (government budget balance) (US \$million)	–2058	–2144	–3214	–5342
current account balance (US \$million)	–418	–557	3724	1547
nominal exchange rate ¹ (Taka per US dollar) (The Taka (Tk) is the currency of Bangladesh)	52.14	64.33	69.65	77.64
Gini coefficient	0.334	0.332	0.321	0.320

¹ The nominal exchange rate is the number of units of one currency that can be exchanged for one unit of the other currency.

Source: Asian Development Bank, 2016

Table 2: Income elasticity of demand for electricity in selected countries

These elasticity values have been calculated by comparing Gross National Income (GNI) per person with electricity consumption per person over the period 1991 to 2010.

Country	Income Elasticity of Demand
Australia	0.60
Japan	0.74
Bangladesh	1.91

Source: Asian Development Bank, 2016

Extract 4: The need for inclusive economic growth in Bangladesh

In 2016 Bangladesh continued with its economic growth, recording an impressive GDP growth rate of 7.1%. Bangladesh is currently the second largest exporter of ready-made clothing in the world after China. In addition, foreign remittances continue to flow into the country in record amounts of roughly US\$14 billion per year from hard-working Bangladeshis residing in the Middle East and other parts of the world.

Signs of an economic boom are visible in and around the country's cities, but especially in the capital, Dhaka, where hundreds of luxury cars and expensive new apartments overlook poor neighbourhoods and slums. A record number of Bangladeshis are now going abroad for vacations and medical treatments, and sending their children to schools overseas for higher education. Many have acquired second and third homes in countries like Malaysia, Australia, Canada, the United Kingdom (UK), and the United States (US). In a country of 160 million people however, only about 1% makes up this privileged class. This small group almost exclusively enjoys the benefits of economic growth in Bangladesh. They are mostly business people who run family-owned businesses. These groups of companies control vast amounts of wealth and own most of the banks and other financial institutions in Bangladesh.

So what about the rest of the population? According to the latest estimates from the Asian Development Bank (ADB), around 50 million people in Bangladesh continue to live below the poverty line. This constitutes the highest proportion in South Asia. The earnings gap between workers and owners is higher than ever in Bangladesh's business sector. It is even worse for the female labour force, who account for an estimated 45% of the working population. To make matters worse, because women face greater challenges accessing finance and information, female entrepreneurs rarely get the opportunity to compete in the male-dominated arena of trade and commerce.

The stock market, which normally provides an avenue for ordinary people to invest and participate in the larger economy, has been a shambles since the Bangladesh stock market crash in 2011 that sparked violent protests because around 3 million small investors lost all of their money. The incident broke the confidence of potential investors, including the Bangladeshi workers abroad who continue to send their hard-earned money back home. The ongoing domination of economic opportunities by the elites and lack of investment opportunity for ordinary citizens has created an unmanageable gap between the "haves" and the "have-nots," or the super-rich and the rest.

What is needed is an inclusive growth strategy. Policies and structures need to be put in place, which give all people the opportunity to reap the benefits of economic growth. To do so, the government needs to provide a safe and supportive environment including infrastructure support (especially water, roads and energy), and create equal opportunities for all, specifically for the small- and medium-sized enterprises, to compete and participate in business opportunities.

Source: The Asia Foundation, 16 November 2016

Extract 5: Improving access to water, roads and energy

The government has to ensure equal access to productive assets and to infrastructure such as water, transport, and electricity, both across the country and across different socio-economic groups, since these assets create opportunities for growth and help lift people out of poverty.

In Bangladesh in 2015, only 87% of urban and rural households had access to adequate water sources. This was the lowest in South Asia.

Transport infrastructure is quite undeveloped. World Bank data indicate that only 39% of Bangladesh's rural population lives within 2 kilometres of an all-season road – a road that can be used throughout the year by the transport normally used in the area. Only 30% of the roads in Bangladesh are paved.

Transport connectivity is a key contributor to economic and social development. Improved roads and infrastructure can create opportunities for growth and poverty reduction. On the other hand, lack of access to roads prevents communities from accessing education and health services as well as hindering the transport of products.

For many years until 2010, Bangladesh had not invested in power generation, leading to a huge power shortage and power blackouts across all sectors of the economy. The demand for electricity had been rising rapidly along with growth in per capita income, increasing industrialisation, and the expansion of users in agriculture and commerce. Because electricity is an important input to production in manufacturing, agriculture, construction, and various services, inadequate supply and frequent power cuts had emerged and remained a binding constraint on productivity and the expansion of business.

As with other basic services, income is a significant determinant of access to electricity. The urban population is more than twice as likely to have access to electricity than the rural population, where most of the poor reside. Nationwide access to electricity was 32.6% in 2000, and had increased to 56.4% by 2010. That is still way below the 86% average for other countries in South Asia. The electricity connection fee for a household is Tk34000 (US\$430), which covers the cost of a meter, installation, and a security deposit. This is equivalent to about 5 or 6 months of the average household income of a poor person in Dhaka. Due to their low and irregular incomes, the urban poor are unable to afford either the installation costs or to pay for their electricity consumption in a continuous or consistent manner.

Source: Asian Development Bank, *Bangladesh Diagnostic Study*, 2016

Questions

(a) With reference to Table 1:

(i) State what happened to the nominal exchange rate of the Taka (Bangladesh's currency) between 2000 and 2014. [1]

(ii) Explain whether you would expect the change in the current account balance to lead to the change in the value of the Taka shown. [2]

(iii) What can be inferred from the change in the Gini coefficient for Bangladesh? [2]

(b) Explain why a new road network in a country should **not** be classified as a public good. [3]

(c) Explain one possible reason for the difference in values of income elasticity of demand for electricity in Bangladesh and Australia. [4]

(d) Both Bangladesh and Singapore invest in infrastructure projects.

Discuss how such spending may have different impacts on aggregate demand in these two countries. [8]

(e) Discuss whether supply-side policies are the most appropriate policies to achieve inclusive economic growth in Bangladesh. [10]

[Total: 30]

Question 3

Inflation Policies in Brazil and Japan

Extract 1: Brazil inflation rate exceeds official target range in June

Consumer prices provide further worrying economic news for Brazil, as the inflation rate exceeded the government official target range in June 2014. Brazil's inflation target is 4.50%, with an allowed range of 2.50% - 6.50%. Brazil's 12-month inflation index rose to 6.52% last month, from 6.37% in May.

Inflation has been causing problems for Brazil for years as millions moved out of poverty to create a new consumer class. Brazilian's new buying power was not matched by increased production of goods and services. With higher demand and stagnant supply, prices begin to move up. The inflation index got into a steady upward trend by mid-2012 and broke the target ceiling in March 2013, prompting the central bank to raise the interest rate from 7.25% in April 2014 in an effort to curb inflation. But economists say those efforts are not enough.

The problem for some is that Brazil's government spends too much, and that cash welfare benefits are also contributing to inflation by increasing the purchasing power of millions of consumers. Measures to maintain high employment are also increasing labor costs, which is further fueling prices.

Price increases are just one piece of the bad news for the Brazilian economy. The nation's manufacturing sector is in a slump and business confidence is down. Analysts project that Brazil's economy will struggle to grow even 1% this year.

The combination of rising prices and weak production makes life difficult for policy makers. The usual policy against inflation is to raise the cost of borrowing. But if the central bank continues to raise interest rates the economy may grind to a halt, or even shrink. A recession this year is not out of the question. The government has tried to kick-start growth via tax cuts and other incentives, with mixed results. Critics fear these policies may make inflation even worse. Government officials, however, contend that a global economic recovery is in the making and Brazil stands to benefit as larger economies such as the US and the EU get stronger and import more.

'Inflation is under control and will end 2014 within the limits of the range,' the President of Brazil's central bank said in an interview last week. He said the full impact of Brazil's tight monetary policy is still to be felt, and the inflation rate will move 'towards the target', in the next couple of years, although he acknowledges that, for now, 'inflation will remain at high levels'.

Source: Paulo Trevisani, Wall Street Journal, July 2014

Extract 2: Japanese consumer price inflation still below target

Japanese core consumer inflation, which excludes the volatile prices of fresh food but includes oil products, hit 3.3% in July 2014, compared with the same month in 2013. In April 2014, however, the government had increased the sales tax from 5% to 8%. If the effects of this rise are excluded, the inflation rate stood at 1.3%, still below the 2% target that the central bank pledged to meet next year.

Household spending fell more than expected, and factory output remained weak in July 2014 after plunging in June, suggesting that disappointing exports and the sales tax increase may drag on the economy longer than expected. While the central bank, the Bank of Japan, has no plans to expand monetary stimulus anytime soon, it will be under pressure to act if the economy fails to gather momentum.

Household spending was 5.9% lower in July 2014 than in July 2013, because the highest sales tax heard purchasing power and bad weather kept consumers at home over the summer. A senior economist said "Consumer spending will recover, but the pace will be slow. I don't see the need for a big fiscal spending package, but the government may try to come up with some form of economic stimulus for next year."

Separate data show that companies continued to cut back on production as sluggish demand at home

and overseas led to a build-up of inventory, another sign that the pain of the tax increase is proving to be more severe than initially expected. Despite weak signs in the economy, the Bank of Japan is optimistic that a tightening job market will lead to higher wages and more income for households to spend, thereby keeping Japan on track to meet its 2% inflation target.

The unemployment rate, however, rose to 3.8% in July 2014 from 3.7% in June. The jobs-to-applicants ratio was 1.1, the highest for 22 years. In addition, industrial output rose by only 0.2% in July, far less than the 1% increase projected by a group of economists. That was a weak rebound from a 3.4% fall in June – which had been the fastest drop since the March 2011 earthquake and tsunami – as companies slowed production in response to weak exports and a slack post-tax domestic demand. Manufacturers expected to raise output 1.3% in August and 3.5% in September, although these estimated increases were largely in reaction to sluggish output in June and July.

Many analysts agree with the Bank of Japan that growth will rebound though some warn that the recovery may falter if the tax-increase pain is prolonged, and exports failed to increase.

Source: Reuters, 29 August 2014

Table 2: Annual percentage rate of increase in the consumer price index

Year	Brazil	Japan
2009	4.90	-1.34
2010	5.04	-0.72
2011	6.63	-0.28
2012	5.40	-0.03
2013	6.21	0.36
2014	*6.20	**2.67

*Monthly average to June 2014

** Monthly average to April 2014

Source: inflation.eu

Questions

- State what happened to consumer prices in Brazil and Japan between 2011 and 2012. [2]
- Japan increased its sales tax in April 2014. Using a diagram, explain what determines the size of the increase in the price of a good following such a tax increase. [4]
- Use aggregate demand and supply analysis to explain the causes of inflation in Brazil in 2014. [4]
 - Explain how the strengthening of the US and the EU economies might affect prices in Brazil. [2]
- Assess the likely effectiveness of a government policy of changing interest rates in solving the problems of the Japanese economy. [8]
- Discuss whether the Brazilian or the Japanese government has the more damaging and persistent inflationary problem. [10]

[Total: 30m]

Question 4 Interest rates in Australia and the UK

Extract 1: Australia raises interest rates for the second time in a month

In October, Australia became the first developed country to raise interest rates since the global financial crisis after the Reserve Bank of Australia (RBA) increased the cost of borrowing from 3% - a 49-year low 'emergency rate' - to 3.25%. Rates had been slashed from a peak of 7.25% in March 2008.

The RBA has now raised the country's official interest rate for the second time in a month. The rate was raised by 0.25 points to 3.5%, another sign that the country's economic recovery is continuing. The RBA governor said that Australia's major trading partners in the Asian region were experiencing 'noticeably better' conditions. 'Growth in China has been very strong, which is having a significant impact on other economies in the region and on commodity markets,' he said. 'For Australia's trading partner group, growth in 2010 is likely to be close to trend.' He said economic conditions in Australia had been 'stronger than expected' and measures of confidence in the economy had recovered. 'With the risk of serious economic contraction in Australia now having passed, the RBA's view is that it is sensible to lessen gradually the degree of monetary stimulus that was put in place when the outlook appeared to be much weaker,' he said.

Source: Sophie Tedmanson, Times Online, accessed 3 November 2009

Extract 2: UK interest rates remain on hold

As widely expected, the Bank of England has kept UK interest rates on hold at 0.5% for the seventh successive month. This is because data continues to show that any UK economic recovery remains patchy. The Bank also said it would continue with its programme of pumping £175 billion of extra money into the economy, a policy known as 'quantitative easing'.

The economy contracted 0.6% between April and June of 2009, following a 2.4% decline from January to March. Many commentators thought that the economy probably expanded during the third quarter of 2009. However, when official figures were published, they showed a further decline of 0.2%.

Source: BBC News, 8 October 2009

Extract 3: UK Interest rates to 'stay very low for years'

Interest rates in the UK will stay very low for years as the government attempts to deal with the UK's weak economy, according to a study by the Centre for Economics and Business Research (CEBR). The cost of borrowing is forecast to remain at its record low of 0.5% until at least 2011 and to remain below 2% until 2014. A weaker pound sterling - slumping to just US\$1.40 and possibly falling below 1:1 parity with the euro - is also expected.

The CEBR predicts the next government will have to generate around £100 billion through tax rises and spending cuts to deal with the country's budget deficit. A future government will have to bring the deficit down to £50 billion by the 2014-15 financial year, a tough challenge, as the CEBR also warns that the deficit will be £143 billion in that year if no action is taken. The CEBR chief executive said: 'We are likely to see a restrictive fiscal policy while monetary policy remains expansionary.'

Source: The Guardian, 12 October 2009

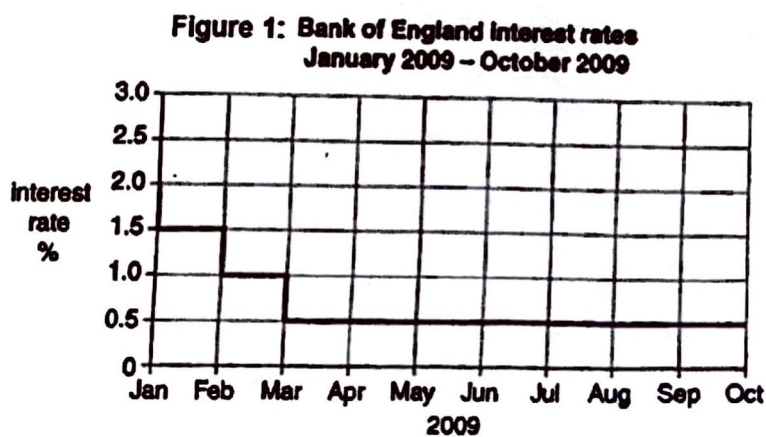
Extract 4: Pound under new attack as agency says it will cut UK's credit rating

The pound sterling's value against the US dollar tumbled when a leading credit ratings agency suggested that the UK might lose its cherished AAA status (a measure of credit rating) because it was the 'potentially most at risk' of the major economies. Fitch Ratings said the UK's credit rating was most at risk because the country required 'the largest budget adjustment'. Following the announcement, the pound sterling, which had been appreciating against the US dollar, fell by about a cent from a three-month high to S\$1.66. The pound also fell back against the euro to €1.11.

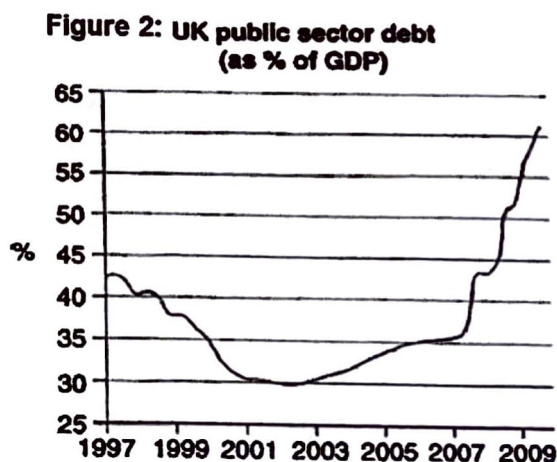
The concerns of Fitch Ratings centre on the UK's soaring budget deficit, which is set to approach £200 billion this fiscal year, or about 13% of UK GDP. A spokesman for the Confederation of British Industry said: 'The UK's credit rating must be put beyond doubt and the budget returned to balance by 2015. The emphasis must be on spending cuts rather than tax increases.'

Apart from the political embarrassment involved in any threat to the credit rating, such a move would have severe consequences for the cost of servicing the UK's debt, because investors would demand higher interest as a 'risk premium' against the possibility of default. Only 17 nations or territories have AAA status. The elite are mostly larger, advanced economies, but there are exceptions. The list comprises Australia, Austria, Canada, Denmark, Finland, France, Germany, Guernsey, the Isle of Man, Liechtenstein, Luxembourg, the Netherlands, Norway, Singapore, Sweden, the UK and the US. The UK is the only AAA-rated nation that also has a negative outlook, given that its national debt is set to rise to 100% of GDP.

Source: Sean O'Grady, Economics Editor, *The Independent*, 11 November 2009



Source: Bank of England



Source: UK Office of National Statistics

Table 1: Public sector debt (March 2010)

	% of GDP
Australia	19
UK	68.5
World	54

Source: *The Guardian*

Table 2: Annual percentage change in selected economies

	real GDP			consumer prices		
	2007	2008	2009	2007	2008	2009
Australia	4.0	2.4	0.7	2.3	4.4	1.6
UK	2.6	0.7	-4.4	2.3	3.6	1.9
All advanced economies	2.7	0.6	-3.4	2.2	3.4	0.1

Table 3: Unemployment: percentage of the workforce in selected economies

	2007	2008	2009
Australia	4.4	4.2	6.0
UK	5.4	5.5	7.6
All advanced economies	5.4	5.8	8.2

Sources of Tables 3 and 4: OECD, *World Economic Outlook*, 2009

Questions

- (a) Compare the UK's recession with that of Australia between 2007 and 2009. [2]
- (b) (i) Describe the trend in the UK's public sector debt shown in Fig. 2. [1]
(ii) With reference to the data, explain how recession affects public sector debt. [3]
- (c) (i) Using a diagram, explain why the pound sterling fell in value after the warning about the UK's credit rating. [2]
(ii) Explain how this fall in the pound sterling might affect prices of goods and services in the UK. [2]
- (d) What evidence is there in the data that real interest rates were negative in the UK during most of 2009? [2]
- (e) With reference to the data, discuss why the authorities in the UK were expected to maintain low interest rates 'for years' while the authorities in Australia have increased them. [8]
- (f) The CEBR chief executive predicted that 'the next government will have to generate around £100 billion through tax rises and spending cuts to deal with the country's budget deficit'. Discuss the likely impact of such a restrictive fiscal policy on the UK economy. [10]

[30 marks]

Optional Question

Question 5: China's Economy Faces Problems

Extract 4: China's economic weakness continues as both imports and exports fall

Chinese imports fell for a seventh consecutive month in May 2015 and were down by 17% compared to May 2014. Exports also decreased, according to official data, as the world's second-biggest economy shows weakness even in the face of government measures to stimulate growth such as interest rate cuts. The disappointing figures come as leaders try to transform the economy to one where growth is driven by consumer spending rather than government expenditure, investment and exports.

Exports dropped for the third consecutive month, falling 2.5% to US\$191 billion, but the sharp decrease in imports meant the trade surplus expanded 65.6% year-on-year to US\$59 billion, according to the data.

The figures provided further evidence that weakness in the Chinese economy, a key driver of world growth, has extended into the current quarter despite intensified government stimulus measures. Gross Domestic Product (GDP) grew 7.4% in 2014, the lowest rate in nearly a quarter of a century, while 2015 has shown few signs of a reversal in the slowing trend. Beijing has set the target for the economy to grow by "around 7%" in 2015, lower than its target for 2014, which was about 7.5%.

Chinese leaders have said they are ready to accept slower but more sustained economic growth, as they try to transform an investment-driven growth model to one in which consumption expenditure is the most important driver.

Chinese leaders have said they are ready to accept slower but more sustained economic growth, as they try to transform an investment-driven growth model to one in which consumption expenditure is the most important driver.

Still, the authorities have stepped up stimulus efforts since late last year in an attempt to ensure the slowdown does not get out of hand. The Central Bank of China has cut interest rates three times since November and twice reduced the amount of cash banks must keep in reserve so that more loans could be given out, along with other measures to inject liquidity into the market to stimulate growth.

Consumption and investment are expected to pick up during 2015 as a result of the implementation of expansionary fiscal and monetary policies. As a result, a modest recovery in Chinese imports is expected. The Chinese government's recent cut in tariffs on various consumer products will also contribute to the recovery. In addition it is expected that growth will gradually recover as the United States economy strengthens.

Source: Agence France-Presse in Beijing, 8 June 2015

Table 3: China's composition of aggregate demand

	Components of Aggregate Demand (as % of GDP)				
	Household Consumption Expenditure (C)	Investment Expenditure (I)	Government Current Expenditure (G)	Exports (X)	Imports (M)
2000	47	35	16	21	19
2014	35	47	14	23	19

Source: National Bureau of Statistics of China

Extract 5: Rise in food prices pushes China's consumer inflation up 1.6% in December 2015

China's consumer inflation edged up by 1.6% in December 2015 year-on-year as food prices rose, official data showed. The inflation rate reported by the National Bureau of Statistics was up from November 2015's year-on-year rate of 1.5% and was driven by a 1.5% increase in food prices in December 2015.

Consumer inflation had been drifting down after hitting a year-on-year rate of 2% in August 2015. Relatively low inflation has given Chinese leaders room to cut interest rates six times since November 2014 to stimulate the slowing economy.

The latest data showed that consumer prices increased by 1.40% in 2015 compared with the previous year, also pushed up by higher food prices. Pork prices increased year-on-year by 9.5% and fresh vegetables went up 7.4%. The price rise in 2015 was well below the official target of 3%, and lower than the 2.06% inflation in 2014.

Producer prices, measured as prices of goods that leave the factory, declined by 5.9% in December 2015 from a year earlier, extending a long period of decline as a result of excess production capacity in many industries. Producer prices dropped 5.2% in 2015 from the previous year.

Source: Associated Press, 8 January 2016

Table 4: Annual average inflation rate in China as measured by the Consumer Price Index (CPI) (%)

Average Inflation by Year (CPI) (%)	
2011	5.53
2012	2.62
2013	2.57
2014	2.06
2015	1.40

Source: National Bureau of Statistics of China

Extract 6: The impact of China's weakness on the world economy

China's imports fell by 14.6% over the first seven months of 2015 compared to the same period in 2014. The following table shows the impact of a 14.6% fall in China's imports on the value of the export sales lost of selected economies.

Table 5: Estimated impact on selected economies of a fall of 14.6% in China's imports

Country	Estimated Export Sales Lost (US\$ billion)
Australia	25.20
Japan	18.08
New Zealand	3.54
Singapore	2.16

The effects of a slowdown in China are felt all over the world; China's near neighbours are connected with its manufacturing processes. Other countries supply it with oil and gas, while some far-away places in Africa and South America provide it with metals and other primary materials. Exports of agricultural produce are important to Brazil and New Zealand. Lastly, several European countries are surprisingly dependent on China's demand for their luxury goods.

Source: The Guardian, 26 August 2015

Questions

- (a) Explain briefly how any one component of aggregate demand would be expected to change as interest rates are cut in China. [2]
- (b) With reference to Table 4, describe what has happened to the rate of inflation and the price level in China between 2011 and 2015. [2]
- (c) Using an aggregate demand and aggregate supply diagram, explain how the strengthening of the US economy might stimulate growth in China. [4]
- (d) Explain two factors that would likely determine the impact of the fall in export sales to China on any one economy shown in Table 5. [4]
- (e) Analyse how China's policymakers might attempt to transform the economy to one that is driven by consumer spending. Assess whether they are likely to be successful. [8]
- (f) Discuss whether an expansionary monetary policy adopted by China, is likely, on balance, to have a beneficial effect upon China's trading partners. [10]

[30 marks]

Section C: Essay Questions

1. Governments have aims in relation to unemployment, economic growth, and the balance of payments
 - (a) Explain the consequences of failing to achieve these aims. [10]
 - (b) Discuss whether failure to achieve these macroeconomic aims is more likely to be caused by domestic or international factors. [15]

2. The recent worldwide recession caused many governments to re-assess their use of fiscal policy in order to stimulate their stagnating economies.
 - (a) Explain what would reduce the effectiveness of fiscal policy as a stimulus to the Singapore economy. [10]
 - (b) Assess alternative policies that might be more appropriate in managing the Singapore economy when faced with a worldwide recession. [15]

3. Singapore currently has a low rate of inflation and a persistent surplus on the current account of its balance of payments. However, unexpected external developments such as the outbreak of disease, natural disasters or increases in global raw material prices always represent potential risks to Singapore's economy.
 - (a) Explain how a modest and gradual appreciation in Singapore's exchange rate might affect Singapore's rate of inflation and its current account balance. [10]
 - (b) Discuss whether the modest and gradual appreciation in Singapore's exchange rate is likely to be the best policy to manage the effects of unexpected external developments. [15]

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

5. During the pandemic, there was a fall in investment and a rise in unemployment. Innovation-based investment is a good way to stimulate the economy but, unless appropriate government policy action is taken, this might lead to another type of unemployment.
 - (a) Explain how a fall in investment might lead to one type of unemployment while a rise in innovation-based investment might lead to a different type of unemployment. [10]
 - (b) Discuss the extent to which a rise in Singapore government spending on investment in major capital projects and in human capital are both required to reduce unemployment in a post-pandemic world. [15]

6. "The UK has run a large deficit on the current account of its balance of payments for several years."
- (a) Explain what might cause a persistent and large deficit on a country's balance of payments on current account. [10]
- (b) Discuss the view that government policies to deal with such a deficit can be potentially damaging and ineffective. [15]

Optional Questions:

1. It was suggested by economists early in 2017 that world interest rates are likely to rise in the future.
- (a) Explain why Singapore chooses exchange rates rather than interest rates as its main tool of monetary policy. [10]
- (b) Discuss whether a rise in world interest rates would be of overall benefit to Singapore's economy. [15]
2. The tight labour market and external factors, including potential shocks to global trade and commodity prices, posed considerable downside risks for Singapore's very open economy.
- (a) In the light of the above statement, explain the challenges faced by the Singapore economy in recent years. [10]
- (b) Discuss the measures that the Singapore government can adopt to overcome these challenges. [15]