# 21 Introduction to the measures of economic performance

## Activity 1

**(a)** It means the current account is in deficit. This suggests the balance of trade is in deficit, which means the value of exports is less than the value of imports. The balance of trade is a major component of the current account on the balance of payments. Brazil's current account was in deficit from 2007–15.

**(b)** Brazil's economic growth fluctuates over the period. The highest economic growth rate was in 2010, where real GDP increased by nearly 8 per cent. In 2009, real GDP did not grow at all – the rate of growth was 0 per cent. What is significant about the period 2015 and 2016 is that the economic growth rate was negative. This means real GDP fell in Brazil over this period. This shows that Brazil was experiencing a recession, defined as at least two consecutive quarters where there is a contraction in real GDP.

**(c)** The unemployment rate was falling at a steady rate over the period shown. In 2006 it was 10 per cent, but by 2014 (the latest year shown) it had fallen to approximately 5 per cent.

**(d)** The sharpest rise in prices took place in 2015. Inflation was approximately 9 per cent, which means prices rose by 9 per cent over the course of that year.

## Exam practice

**1.(a)**

A – Correct – the current account, as a percentage of GDP, was negative throughout this period.

B – Incorrect – the inflation rate fell, but because it is still positive, prices were rising between 2010 and 2011. They were just rising more slowly in 2011, compared to 2010.

C – Incorrect – prices were rising throughout the period, because the inflation rate was positive.

D – Incorrect – the inflation rate was approximately the same at 7 per cent. However, this means prices were rising by 7 per cent in 2015 and again by 7 per cent in 2016.

**2.(a)**

A – Incorrect – the growth rate fell. However, because the growth rate is positive, this still means real GDP (output) is increasing (but at a slower rate).

B – Incorrect – The unemployment rate fell during this period.

C – Incorrect – 2009 shows a negative growth rate, suggesting a recession.

D – Correct – although the growth rate is falling, it is still positive.

**(b)** Economic growth is a measure of how much output has increased by over a 12-month period. It is expressed as a percentage. For example, Turkey's economic growth rate in 2014 was 5 per cent. This means output increased by 5 per cent over 2014.

**(c)** Turkey experienced negative economic growth in 2009 of approximately −5 per cent. This means output in 2009 was 5 per cent lower than in 2008. Real GDP (output) contracted.

Provided at least two consecutive quarters of negative economic growth have been experienced in this period, then Turkey experienced a recession.

**(d)** Economic growth and unemployment tend to be linked. A fall in economic growth in Turkey, from 8.9 per cent to 3.1 per cent, means output is increasing, but at a slower rate. This is likely to be associated with a rise in unemployment. Although Turkey is not in a recession, if output is growing slowly, workers who are made redundant through technological advances will not find jobs created in other industries. Also, if the population of working-age group is increasing faster than output growth, there will not be enough job creation. Unemployment levels will rise. In a recession, the increase in unemployment would be more significant.

**3.** Cambodia's GDP, measured in US dollars, at constant 2010 prices, increased between 2010 and 2016. 'At constant prices' means the data has been adjusted for inflation. The value of output has been recorded, for all years, at 2010 price levels. An increase in GDP, at constant prices, means real GDP (or output) in Cambodia rose. Between 2010 and 2016, GDP, at constant 2010 prices, increased from $11.2bn to $17bn. This shows that output, in Cambodia, in 2016 was 52 per cent higher than output in 2010.

## 22 Economic growth and GDP/GNI

### Activity 1

**(a)** Gross domestic product (GDP) at market prices is the key measure of national income today. It is a measure of national income that includes the value of indirect taxes but does not include the value of net investment income from abroad.

Gross value added at basic prices is GDP at market prices minus the value of indirect taxes plus the value of any subsidies. It does not include the value of net investment income from abroad.

Gross national product (GNP) at market prices is the market value of goods and services produced over a period of time through the labour or property supplied by citizens of a country both domestically (GDP) and overseas.

Net national income at market prices, is a measure of national income which includes net incomes from investments abroad and an allowance for depreciation of the nation's capital stock.

**(b)** The data supports the view that changes in GDP at market prices broadly reflect changes in other measures of national income. In Figure 1 in the Student Book, the four lines showing four different measures of national income broadly move in parallel over the period 1997 to 2013. There are some minor divergences, such as for the period 2000 to 2007 for GDP at market prices and GNP at market prices, and 2007 to 2013 for gross value added at basic prices and net national income at market prices. However, these are relatively insignificant.

## Activity 2

| Table 1 | | | |
|---|---|---|---|
| Year | GDP per capita at nominal prices (€) | Total GDP at real Year 1 prices (€bn) | GDP per head at Year 1 prices (€) |
| 1 | 100 000 | 100 | 100 000 |
| 2 | 100 000 | 120 | 100 000 |
| 3 | 120 000 | 75 | 60 000 |
| 4 | 160 000 | 80 | 64 000 |

Table 1

Notes for making the calculations:

**(a)** GDP per capita at nominal prices is calculated by dividing GDP at nominal prices in column 2 in Table 1 in the Student Book by the population in column 3. So, for Year 1, GDP per capita was €100 billion (GDP) divided by 1 million (population), giving an answer of €100,000.

**(b)** Total GDP at real Year 1 prices is calculated by adjusting GDP at nominal prices in column 2 in Table 1 in the Student Book, for the change in prices shown in column 4 in Table 1 in the Student Book. For example, in Year 4, nominal GDP was €200 billion. However, prices had increased 2.5 times between Year 1 and Year 4 (250 ÷ 100). So, the real value of GDP in Year 4 is €200 billion (nominal GDP) divided by 2.5 (the change in prices over the period), giving an answer of €80 billion.

**(c)** The same method of calculation needs to be used here as in (b), except that it is GDP per head that is being adjusted. So, the real value of GDP per head in Year 4 is €160,000 (nominal GDP) divided by 2.5 (the change in prices over the period), giving an answer of €64,000.

## Activity 3

**(a)** To avoid paying tax (tax evasion). This is easier to do if an individual is self-employed. In Greece, recorded unemployment is high. This suggests spending is low. Businesses are likely to be struggling to make a profit or survive, so wages are likely to be low. Therefore, individuals have an incentive not to pay taxes as a means of attaining a basic living standard. Some individuals are also disillusioned with the quality of public services and feel tax revenue is being ‘wasted’, possibly due to corruption.

**(b)** Official GDP will understate the true level of economic activity when there is a hidden economy. For Greece, the size of the hidden economy is significant. It is estimated to be 24 per cent of all economic activity.

**(c)** For governments, the loss in potential tax revenue could be significant. In 2015, the EU said that governments were missing out on €168 billion VAT revenue. This loss in tax

revenue might restrict how much can be spent on public services. The government might also end up spending money on welfare payments to individuals who do not need this income support.

### Activity 4

| Year | GDP at current prices HUF billion | GDP deflator 2010 = 100 | GDP at constant 2010 prices (HUF billion) | Population (millions) | GDP, at constant 2010 prices, per capita HUF million |
|---|---|---|---|---|---|
| 2013 | 30,127.3 | 108.8 | 100/108.8 × 30,127.3 = 27,690.5 | 9.893 | 27690500/9.893 = 2.8 HUF million |
| 2014 | 32,400.1 | 112.5 | 100/112.5 × 32,400.1 = 28,800.1 | 9.866 | 28800100/9.866 = 2.9 HUF million |
| 2015 | 33,999.0 | 114.4 | 100/114.4 × 33,999 = 29,719.4 | 9.843 | 29719400/9.843 = 3.0 HUF million |
| 2016 | 35,005.4 | 115.5 | 100/115.5 × 35,005.4 = 30,307.7 | 9.821 | 30307700/9.821 = 3.1 HUF million |

Table 2: Hungary's economy

**(a)** 'GDP at current prices' means output in the economy, for every year, has been valued at the prices which actually existed that year. For example, if GDP for Hungary, in 2015, is 33,999 HUF billion, then the value of output in 2015 has been recorded using the prices which existed in 2015.

**(b)** GDP per capita, at current prices, per capita = GDP at current prices divided by population. Remember that one value is in billions and the other is in millions. So, convert GDP at current prices into millions.

| Year | GDP per capita, at current prices |
|---|---|
| 2013 | 30127300/9.893 = 3.04 HUF million |
| 2014 | 32400100/9.866 = 3.28 HUF million |
| 2015 | 33999000/9.843 = 3.45 HUF million |
| 2016 | 35005400/9.821 = 3.56 HUF million |

Table 3

**(c)** See table 2. Note: we are told that the GDP deflator index in 2010 = 100.

GDP at constant 2010 prices means the volume of output, for each year, has been valued at 2010 prices.

The economic growth rate will be the percentage increase in real GDP (GDP at constant prices).

Economic growth rate in 2014 = (28,800.1 – 27,690.5) divided by 27,690.5 × 100 = 4.01%

Economic growth rate in 2015 = (29,719.4 – 28,800.1) divided by 28,800.1 × 100 = 3.19%

Economic growth rate in 2016 = (30307.7 – 29,719.4) divided by 29,719.4 × 100 = 1.98%

Total output increased by 4.01 per cent in 2014. This was the greatest percentage increase, over the course of a year, for the period shown.

**(d)** See table 2 for data.

GDP per capita, at constant 2010 prices, rose from 2.8 HUF million in 2013 to 3.1 HUF million. This is an increase in real GDP of approximately 10.7 per cent. This suggests that living standards rose over this period. However, there are limitations of using real GDP per capita to make a judgement. These include issues such as that the improvement may not apply to the majority of the population. If income distribution becomes more unequal, then there may be a significant few who become worse off. Also, if changes in GDP are due to a greater proportion of output being devoted to defence, then living standards are unlikely to rise. As one final example, if the rise in output is on capital goods (investment), rather than consumer goods, then there may be no change in living standards in the short run.

## Activity 5

**(a)** Governments collect national income statistics for their own economies. The value of national income is measured in the currency of the country. For the UK, this is pounds sterling, for France it is in euros and for the USA it is US dollars, for example. When comparing GDP between countries, a problem arises because euros are not the same unit of currency as UK pounds or US dollars. There are many possible ways in which the conversion could take place. The most common is to compare GDP using market exchange rates. If the average exchange rate in one year for the UK is £1 = US$2, then UK GDP of £1 billion would equal US$2 billion. However, foreign exchange markets are heavily driven in the short term by speculation. There can be large rises or falls in a country's exchange rate that has no bearing on the real value of what it produces.

An alternative method of converting values is to use purchasing power parities. This involves comparing the prices of goods and services between economies. Using a typical basket of goods bought, these prices are then compared, producing an exchange rate between the two countries. For example, assume that the UK and the USA only produce one commodity, bread. If a loaf of bread costs £1 in the UK and $3 in the USA, then the exchange rate at purchasing power parities is £1=US$3.

The differences in the two methods are shown in Figure 2 in the Student Book. For Norway, for example, its GNI per head at purchasing power parities is significantly higher than at market exchange rates. Market exchange rates considerably undervalue Norway's GNI per head compared to the cost of living in Norway. In contrast, market exchange rates overvalue GNI per head in Saudi Arabia compared to the cost of living.

**(b)** If market exchange rates were used, then Norway's GDP per capita in 2013 is approximately US$65,000, whereas China's GDP per capita is approximately US$10,000. This might imply that a citizen in Norway is approximately six and a half times better off than a citizen of China. However, using exchange rate at PPPs, the living standard difference between the two economies is greater. At PPP, Norway's GDP per capita is just over US$100,000, whereas China's GDP per capita is approximately US$5,000. This suggests the typical citizen in Norway is approximately 20 times better off, in terms of purchasing power of their incomes, than a typical citizen in China. This shows that the market exchange

rate, used to convert the data, has given a very misleading impression of comparative living standards between these countries.

**(c)** GDP per capita, at PPP, can be used as a proxy for comparing living standards between countries. PPP means costs of living differences between countries have been adjusted for so countries can be ranked in order of living standards. The data suggests that Norway has the highest living standards, followed by Sweden. Using market exchange rates would put Sweden third; however, this would not be an accurate indication of relative living standards because market exchange rates bear little relation to relative prices in different countries. Figure 2 has listed the countries, from the lowest living standards to the highest living standards since the GDP per capita at PPP increases in this order.

## Activity 6

**(a)** GDP per capita is total GDP divided by the size of the population. It represents GDP (national income) per head. To compare living standards between countries, the GDP per capita must be converted into a single currency. It is important that the purchasing power parity exchange rate is used; this will reflect cost of living differences between countries. GDP per capita, at PPP, will show how the purchasing power compares, between countries, for the 'average' citizen. This gives some indication of relative living standards between countries.

GDP per capita, in Norway, at purchasing power parity, is approximately two times greater than Portugal. This suggests that living standards in Norway are double those in Portugal.

**(b)** To compare living standards over time, GDP data needs to be at 'constant prices'. This means the data has been adjusted for inflation, so any changes will reflect real changes in GDP (i.e. changes in volume of output). If GDP per capita, at constant prices, rises, then this indicates living standards have risen over time.

The graph suggests Estonia has experienced the most significant change in living standards, between 2001 and 2016. GDP per head, at constant prices, has risen by approximately 50 per cent.

**(c)** In Greece, GDP per capita, at constant prices, fell. On average, individuals are worse off since there is less volume of goods and services per person.

**(d)** Although the data is at constant prices, per capita, and at purchasing power parity exchange rates (so comparisons between countries can be made), the use of GDP statistics may be misleading to compare living standards. Reasons, among others, include the following:

- Existence of a hidden economy would mean that official data would suggest living standards are lower than they really are for an economy. Differences in the size of the hidden economy, between countries, would also make comparisons unreliable, unless estimates of the size of the hidden economy were fairly accurate.
- The proportion of home-produced services may differ over time and between countries. These services under-record national output.
- Some goods and services produced may not directly link to living standards, e.g. defence. Differences in defence spending over time and between countries may give misleading comparisons.

- GDP per capita may give a very misleading impression of how living standards have changed for the typical citizen. This is particularly true if income distribution is very unequal.

## Exam practice

**1.(a)** Purchasing power parity is an exchange rate, used to convert one currency into another, which equalises the purchasing power of the different currencies. If, for example, a basket of goods cost £10 in the UK, and the equivalent basket cost $20 in the USA, then the PPP exchange rate would be £1 = $2. The PPP is used to reflect cost of living differences between countries.

**(b)** China's GDP per capita (PPP) = $21,417,150 million/1400 million = $15,298 million

Bangladesh GDP per capita (PPP) = $ 583,480 million/163 million = $3580 million

China's GDP per capita : Bangladesh GDP per capita

15,298 : 3580

4.3 : 1

(This suggests that average living standards are four times higher in China than in Bangladesh.)

**(c)** Sri Lanka's GDP in 2016 = GDP per capita × population = 12,318 × 21.2 million = $261,142 million

Cyprus's GDP in 2016 = GDP per capita × population = 23,050 × 1.2 million = $27,660 million

Therefore, the ratio of Sri Lanka's GDP in 2016 to Cyprus's GDP in 2016 =

261,142 : 27,660

9.4 : 1

(Sri Lanka's GDP is just over nine times bigger than that of Cyprus.)

**2.** GDP at market prices is the total market value of all goods and services produced by an economy over the course of a year. It includes the value of indirect taxation. For example, Korea's GDP at market prices in 2013 was 1429.4 trillion KRW. The quantity of goods and services produced in Korea, in 2013, has been valued using the prices in that year.

**3.** GDP at constant prices means GDP has been adjusted for inflation over time. Any changes in GDP at constant prices will reflect real changes in GDP over time. In 1995, Costa Rica's GDP, at constant 2007 prices, was 11,372,750 million Costa Rican Colón. This means the quantity of goods and services produced in Costa Rica, in 1995, have been valued using 2007 prices. By 2015, GDP at constant 2007 prices had risen to 25,945,973 million Costa Rican Colón. This data shows that the volume of goods and services produced in Costa Rica, in 2015, was more than double the amount produced in 1995.

**4.** GDP per capita, at PPP, is often used as a measure of comparing living standards between countries. Figure 5 in the Student Book suggests that living standards in Namibia

were just over three times higher than living standards in Tanzania. In turn, US living standards are typically nearly six times higher than those in Namibia. However, one limitation of making these judgements is that economic activity (the production of goods and services) often goes unrecorded due to tax evasion. The size of this unrecorded GDP is called the hidden economy or the informal economy. It is likely that, of the three countries in Figure 5 of the Student Book, the size of the hidden economy in the USA, as a percentage of GDP, will be the smallest. Governments in advanced economies are more likely to have the resources to minimise tax evasion. The extract states that Tanzania's hidden economy, as a percentage of GDP, is significantly larger than that in Namibia. This means GDP understates economic activity more in Tanzania than Namibia. Therefore, the living standards in Tanzania will not be as low, compared to Namibia, as the data suggests. Likewise, the differences in living standards between the two developing countries and the USA are unlikely to be as large as the data suggests. The problem for comparisons is that the size of the hidden economy can only be an estimate, since accurate data is unavailable.

**5.** GDP per capita, at purchasing power parity, is a useful starting point to measure living standards between countries. If the GDP has been converted into one currency, at purchasing power parity exchange rates, then the cost of living differences between countries have been adjusted for. This is a useful starting point to assess living standards, since volume of goods and services per person will impact on whether the material standard of living is relatively high or low. The different sizes of countries' populations have also been considered, if the data is per capita.

However, there are problems or limitations in relying on this measure alone. GDP statistics can exclude some economic activity. The GDP may be understated when a hidden economy exists. In some countries, particularly developing ones, the size of the informal or hidden economy may be quite significant. For example, families may grow their own crops and consume these goods. The production of these agricultural goods will not show up in the statistics.

Comparing living standards between countries can also be complicated by the different proportions of GDP spent on defence. It can be argued that defence expenditure does not add directly to an individual's standard of living compared to consumer goods.

GDP per capita also takes no account of income distribution differences between countries. In one economy, if income is very unequally divided, it may be the case that the majority of individuals have a fairly low standard of living, compared to another country with the same GDP per capita but where income is more equally divided. The quality of national income data collection also differs widely between countries, which makes the use of that data unreliable.

So far, the discussion has focussed on living standards in terms of 'material living standards' (volume of goods and services). An individual's well-being covers a much wider range of factors. Indicators of well-being would include GDP per capita, but other indicators are also important. For example, the World Happiness Report includes other dimensions of well-being such as healthy life expectancy, freedom to make choices, sense of community in terms of having people to rely on, trustworthy governments, etc. The OECD Better Life Index also considers factors like job security, work–life balance, quality of housing, educational opportunities, etc. Some of these are likely to be positively related to GDP per capita, e.g. if GDP per capita is high, it is likely that governments can raise high tax revenue to support spending on high-quality schools or high-quality healthcare. However, some aspects of well-

being do not relate so directly to GDP per capita, such as having a culture in communities where people look out for each other.

However, the problem with some measures of well-being is that they can be hard to measure, which makes comparisons between countries difficult. In addition, asking people how happy they feel, which is a subjective happiness measure, may not be an accurate indication of differences in well-being between countries.

To conclude, GDP per capita is a useful starting point to compare well-being between countries. If only one measure can be used, it is probably the best measure, since it is likely to reflect a fairly broad measure of well-being indicators. However, this does have limitations and it is useful to collect a broader range of indicators, which can be analysed with GDP per capita, to get a clearer idea of how well-being compares between two countries.

## 23 Measuring inflation and unemployment

### Activity 1

**(a)** For the first part of the period from 1991 to 2000, Angola arguably suffered from hyperinflation. Annual percentage peaked at over 4000 per cent in 1996, having started at nearly 100 per cent in 1991. It didn't fall below 100 per cent until 2003. The period 2003–13 was characterised by much lower inflation averaging around 10 per cent from 2006 onwards.

**(b)** There is no strict definition of hyperinflation in terms of inflation exceeding a particular percentage number. However, inflation rates exceeding 50 per cent might be described as hyperinflation. On this measure, Angola experienced hyperinflation from 1991 to 2003. The period 1993–96 was particularly bad with inflation exceeding 1000 per cent in each year. The period 2004–13 saw relatively low inflation, below 50 per cent per year. So, the period 1991–2013 can be split into two with the first two-thirds of the period seeing hyperinflation and the last third seeing more moderate inflation.

### Activity 2

**(a)**

| Year | % inflation |
|---|---|
| 1 | 10.00 |
| 2 | 8.75 |
| 3 | 5.60 |
| 4 | 2.15 |
| 5 | 4.00 |
| 6 | 4.24 |
| 7 | 6.76 |
| 8 | 9.78 |

In year 1, the inflation rate is 10 per cent, calculated by (10 × 0.3) + (10 × 0.7). In year 2, it was 8.75 per cent, calculated by (5 × 0.25) + (10 × 0.75). Years 3–8 are calculated in a similar way i.e. (% increase in price of food × weighting of food) + (% increase in price of all other items × weighting of all other items).

**(b)**

| Year | RPI |
|---|---|
| 1 | 100.00 |
| 2 | 108.75 |
| 3 | 114.84 |
| 4 | 117.31 |
| 5 | 122.00 |
| 6 | 127.17 |
| 7 | 135.77 |
| 8 | 149.05 |

In year 1, the price index is 100. In year 2, the price index can be calculated by year 1 price index × {1 + (Year 2 inflation rate ÷ 100)} = 100 × {1 + (8.75 ÷ 100)} = 108.75. In year 3, the price index can be calculated by Year 2 price index × {1 + (Year 3 inflation rate ÷ 100)} = 108.75 × {1 + (5.6 ÷ 100)} = 114.84.

## Activity 3

**(a)** Input prices (e.g. materials and fuels purchased by manufacturers) have fluctuated over the period, but reached a peak in May 2013, where they were 20 per cent above their price in 2010. In April 2002, input prices were at their lowest (40 per cent below the price in 2010). Over the whole period, there was an upward trend in input prices from an index number of approximately 60 in April 2002 to approximately 110 by November 2016.

Output prices (factory gate prices) have also followed an upward trend, from an index number of approximately 85, in April 2002, to 110 in November 2016. However, the increase in output prices has occurred at a lower rate than the increase in input prices.

**(b)** The producer price index is used as an indicator of future trends in the rate of CPI inflation. The rise in the producer price index means costs will be rising for retailers. These firms will try to pass on the rise in their costs to the consumer. Monitoring the producer price index will help the governor of the Bank of England predict whether the future CPI inflation rate is likely to miss his target of 2 per cent.

## Activity 4

**(a)** employed

**(b)** unemployed

**(c)** economically inactive

**(d)** economically inactive

**(e)** employed – John would be classified as ‘under employed’.

## Activity 5

**(a)** Between 2006 and 2015, there is a slight downward trend in the employment rate, from approximately 58 per cent in 2006 to approximately 56 per cent. In contrast, the part-time employment rate increased from approximately 15 per cent in 2006 to 19 per cent in 2015.

**(b)** The slight fall in the employment rate suggests there has been an increase in those unemployed and/or those in the economically inactive population as a percentage of the population of working age. The economically inactive are those who are not working and not unemployed according to the ILO definition. These include students, parents who stay at home to look after children or older relatives, people who take early retirement and discouraged workers.

The increase in the part-time employment rate might be an indication that the number of people in under employment has risen. Although many people choose deliberately to work part-time hours, in times of high unemployment it is often the case that individuals who work part-time would ideally like to work more hours, but they have taken on these jobs until they can obtain full-time work.

## Exam practice

**1.** A: correct – this is the correct definition of the unemployment rate and the chart shows a rise in the unemployment rate between 2010 and 2013.

B: incorrect – the definition of the unemployment rate has not been stated accurately.

C: incorrect – the employment rate and unemployment would not add up to 100 because not everyone who is not working is unemployed. Some are part of the inactive population.

D: incorrect – although the employment rate has fallen between 2010 and 2013, the number of people in employment might have risen if the growth in the labour force had increased at a faster rate.

**2.** The unemployed, according to the ILO measure, are those without a job, who want a job, have actively looked for work in the last four weeks and are able to start work in the next two weeks. The unemployment rate is the number of ILO unemployed as a percentage of the labour force. The labour force is the economically active population which includes those in employment and those unemployed. The labour force does not include the economically inactive. For Greece in 2016, the unemployment rate is 26.7 per cent. This means nearly 27 people in the working-age population out of every 100 people in the labour force are unemployed. This was significantly higher than the OECD average of 6.3 per cent.

**3.(a)** The producer price index is used to measure the changes in the price of a 'typical' basket of goods bought and sold by the manufacturers of an economy. It includes price indices of materials and fuels purchased (input prices) and factory gate prices (output prices). In China, the producer price index fell from 98.3 in 2012 to 89.6 in 2015. There had been factory gate deflation. Industrial prices had fallen over this four-year period.

**(b)** Deflation is a fall in the price level. Table 3 in the Student Book shows a fall in the producer price index from 98.3 in 2012 to 89.6 in 2015. This means producer prices fell over this period. The extract states that China had experienced four years of producer price deflation, with industrial prices falling. Deflation can also apply to consumer prices. However, Table 3 shows a rise in the consumer price index, between 2012 and 2015. So, deflation only applied to factory gate prices.

**(c)** A change in the producer price index is likely to indicate future trends in the consumer price index. If the producer price index is falling, costs will fall for retailers, so there should be downward pressure on consumer prices. Although the consumer price index continues to rise, between 2012–15, it is rising at a slower rate. For example, the CPI inflation rate equals 2.7 per cent in 2013; by 2015 the CPI inflation rate was 1.4 per cent. There may also be a time lag before the fall in costs starts to be passed on to consumers.

**(d)** Food prices rose by 3.2 per cent but accounted for only 1 per cent of the rise in CPI. If W is the weight given to food, then:

$$W/1000 \times 3.2 = 1$$

$$W = 312.5$$

**(e)** The CPI inflation rate measures how much more money a typical consumer needs to buy the same basket of goods at the same time the previous year. The spending patterns of a typical consumer are identified by analysing a sample of spending by households. Price information is also collected for a range of products and services which are in the typical basket. A price index is constructed based on the weighting of different goods and services (what proportion of total spending is spent by the typical consumer on that type of good/service) and by how much those prices have risen. For example, the extract says that food prices carry a heavy weighting. This means that food expenditure represents a relatively large proportion of total spending in China, compared to other goods. For China, the CPI rose from 94.2 in 2012 to 96.7 in 2013. This means the inflation rate, in 2013, is the percentage change in these index numbers between 2012 and 2013. So, the CPI inflation rate in 2013 was 2.7 per cent.

**4.** The unemployment rate is the proportion of the labour force who are unemployed. Unemployment over time will show seasonal fluctuations. For example, in the USA, unemployment will be higher in January and February because the cold weather means there is less activity in some industries, such as agriculture and construction. In the summer, the seasonal fluctuations occur when lots of students come out of education and are looking for jobs. Because these seasonal fluctuations follow a similar pattern each year, this seasonal component is removed so that the underlying trend in unemployment data can be seen more easily. For example, the seasonally adjusted unemployment rate in the USA is lower than the non-seasonally adjusted rate between January and March. This is because the seasonal component makes unemployment higher in these months. Equally, in April and May, when possibly tourism is creating more job opportunities in these months, the seasonal component makes unemployment lower, so the seasonally adjusted rate will be higher. When the fluctuations caused by the seasonal effects are removed, the seasonally adjusted data suggests unemployment in the USA is on a downward trend in this period. The seasonally adjusted unemployment rate was approximately 4.7 per cent in January 2017 and by December this had fallen to approximately 4.2 per cent.

## 24 Balance of payments

### Activity 1

(**a)(i)** Visible exports include exports of manufactured goods and sale of coal to foreign countries.

**(ii)** Exports of services include earnings from foreign tourists.

**(iii)** Primary income and secondary income credits include earnings of nationals working overseas which are sent home.

**(iv)** Visible imports include imports of food and purchase of oil from abroad.

**(v)** Imports of services include payments by foreigners to domestic financial institutions for services rendered.

**(vi)** Income and current transfer debits include interest, profits and dividends paid to foreigners.

**(b)(i)** balance of trade on goods = US$20 billion + US$2 billion − US$10 billion − US$8 billion = $4billion.

**(ii)** balance of trade on services = US$5 billion − US$1 billion = US$4 billion

**(iii)** the current account balance = US$4 billion + US$4 billion + US$7 billion − US$4 billion = US$11 billion.

**(c)(i)** and **(ii)** The cost of transporting a country's exports will not affect the current account balance unless the domestic firms pay foreign firms for transportation services. So, if the country pays US$3 billion to a foreign transportation firm, this US$3 billion will show up as a debit on the balance of trade in services. So, the current account balance will be US$8 billion (rather than US$11 billion). The balance of trade on services would also be reduced from US$4 billion to US$1 billion.

## Exam practice

**1.**(a) incorrect – the deficit narrowed and then moved into surplus.

(b) correct – the balance of trade in services showed a negative balance, between 2009–11, and then was positive between 2012–16.

(c) incorrect – the balance of trade in goods surplus narrowed between 2009–13.

(d) incorrect – the current account balance is approximately US$10 billion.

**2.** The current account is part of the balance of payments. The current account has four components: trade in goods, trade in services, primary income and secondary income accounts. The current account balance records the overall difference between the credits and debits on each of the parts which make up the current account. For the Philippines, the current account has a surplus of 4.4 per cent of GDP. The secondary account records a surplus, largely due to the large amount of remittance payments coming into to the Philippines (US$25 billion). However, the combined balance of trade in goods and services and the primary account were in deficit. The surplus on the secondary income account was greater than the combined deficit on the other components of the current account. This meant a current account surplus was recorded for the Philippines in 2014.

**3.** Indonesia's current account balance = balance on trade in goods + balance on trade in services + primary income balance + secondary income balance = (144.4 − 129) + (23.5 − 30.5) − 29.7 + 4.4 = −US$16.9 billion.

Indonesia's current account balance as a percentage of GDP = 16.9/932.3 x 100 = 1.8

Indonesia's deficit, in 2016, on the current account was 1.8 per cent of GDP.

**4.(a)** The balance of trade in goods and services is a component of the current account of the balance of payments. The balance of trade in goods records inflows (credits) and outflows (debits) of money, due to the trade in goods between countries. For example, Barbados imports goods such as fuel, food, consumer goods and materials for construction. The balance of trade in services records the money flowing between countries, due to the trade in services. Tourism is recorded as a service and represents significant money inflows into Barbados. These export earnings from tourism would be recorded as a credit on the balance of trade in services. The balance of trade in goods and services combines the balances of the two. For both 2012 and 2013, the balance of trade in goods and services recorded a deficit for Barbados. So, the value of exports was less than the value of imports. However, this deficit narrowed between 2012 and 2013. The deficit fell from US$99 million to US$67.6 million.

**(b)** Between 2008 and 2011, international tourism receipts fell from US$1.244 billion to US$0.983 billion. This was due to the fall in the number of international tourists to Barbados over this period. This is a fall of approximately 21 per cent. This would reduce the credits (or money flowing into Barbados) on the balance of trade in services. Since the Caribbean is heavily dependent on tourism, this is likely to be one of the main factors affecting the balance of trade in services. This means the balance of trade in services surplus is likely to have fallen between 2008–11. The fall in the number of tourists over this period was due to a fall in incomes and consumer confidence in the USA, Canada and the UK, caused by the global financial crisis. This hit the Caribbean tourism sector hard.

## 25 Employment and unemployment (causes and effects)

### Activity 1

(a) Katie Morris is likely to be seasonally unemployed. She works in a seasonal industry, the holiday industry. She works during the season, but out of season she finds herself out of work despite wanting to work.

(b) John Penny is affected by cyclical unemployment. The recession will cause a fall in aggregate demand, so all sectors will potentially be affected. The decline in retail sales is caused by the recession.

(c) Manus O'Brien is likely to be suffering from structural unemployment. He is seeking work but has not had a job for 12 years. This would suggest that jobs are not available for him to take.

(d) Nayara Jimenez is likely to be cyclically unemployed. If the housing market is depressed, this suggests that the economy is in a recession. She has been out of work for six months, so it is unlikely she would still be classified as frictionally unemployed.

(e) Seo-yun Kim is affected by structural unemployment. One type of structural unemployment is called technological unemployment. This is when automation replaces workers.

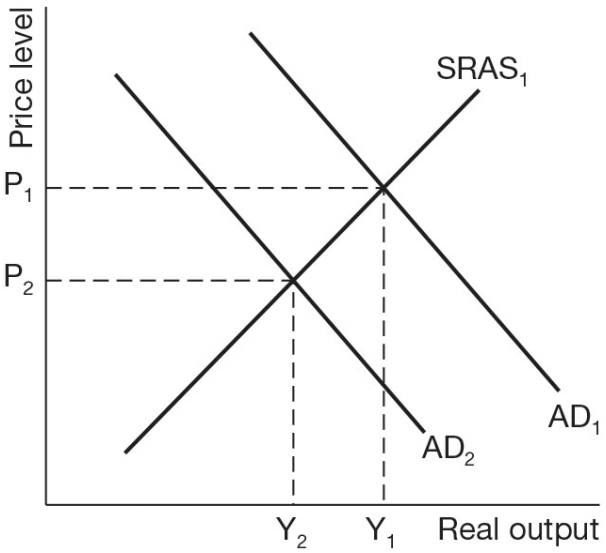
## Activity 2

**(a)** The use of technology, in the production process, should help manufacturing firms in the USA reduce their unit costs. This is because new technology should increase capital productivity. The use of technology should also increase labour productivity, particularly if the investment is in new, advanced technology. The reduction of unit costs will help firms remain price competitive in international markets. Firms can reduce prices and still make a profit. The use of technology is also likely to help firms increase their output and benefit from economies of scale.

**(b)** Workers who have lost their jobs through automation are less likely to remain unemployed if they are multiskilled. This makes them occupationally mobile. They are also less likely to remain unemployed if they are geographically mobile.

## Activity 3

A fall in commodity prices caused export revenues in Brazil to decline. A fall in export revenues reduces injections into the circular flow of income. A fall in exports reduces spending on Brazilian goods and services. This reduces real GDP. When real GDP falls, unemployment rises. The diagram shows how a decrease in aggregate demand causes real GDP to fall (Y1 to Y2). Economic growth of −3.4 per cent, in 2016, creates cyclical unemployment.




## Activity 4

**(a)** The data gives a number of different advantages. One is that migrants are significant contributors to government finances. In the decade to 2011, each migrant on average made a net contribution of £2732. 'EU inward migration added £22 billion to tax revenues over the whole ten-year period.' Migrants from non-EU countries made less contribution, but in the decade to 2011 they still 'contributed a net £162 per year to public finance'. Net contribution is the difference between taxes paid and the amount spent by government on this group of individuals. One reason why the net contribution is so significant is because migrants tend to

be young and in work. So, they contribute work-related taxes. On the other hand, they make little use of the National Health Service because young adults in general are low users. They also claim relatively little in benefits. Two main groups who are heavily reliant on benefits are old-age pensioners and those out of work. Migrants tend to be young and in work.

Another advantage is the 'immigration leads to higher pay for native workers'. No explanation of why this occurs is given in the data. However, one reason might be because many migrant workers take on minimum wage jobs. This allows native workers to take on higher skilled better-paid jobs.

**(b)(i)** It could be argued that native UK workers are likely to suffer from competition in the job market with better-educated immigrants. They will suffer higher rates of unemployment as immigrant workers take 'their' jobs. However, this ignores the fact that a person in work will spend their earnings. This creates more jobs in the economy. Native workers are, in fact, likely to benefit. Although they might be more educated, migrant workers often take on jobs that are below their skill level. This allows native workers to take on better-paid jobs than they would otherwise have obtained.

**(ii)** Firms benefit from employing better-educated workers because on average they employ them at lower rates of pay than would otherwise be the case. Firms are able to exploit a workforce that has a relatively high productivity level in relation to their pay. This makes firms more profitable.

## Activity 5

**(a)** The under employed refers to those who would work more hours if more hours were available, or who are in jobs below their skill level. Around the world, the under 24s are working disproportionately in informal or temporary employment. In developing countries, there is also unpaid labour. Half of the world's young are contributing to the labour market less effectively than they could be. This all suggests many young people are under employed.

**(b)** The passage suggests that, throughout the world, there are many young people who are either inactive in the labour market (e.g. South Asian women who choose not to work), unemployed (the global youth unemployment rate is expected to reach 13.1 per cent in 2016) or under employed (many who work in informal or temporary unemployment will be under employed).

For the individuals themselves, there are high costs of inactivity, unemployment and under employment. These include the psychological costs of feeling a failure, the difficulty of coping on a low income and the long-term cost of becoming more unemployable the longer time goes on.

For local communities, the costs include a likely increase in crime and local areas becoming poorer and run down. This may be hard to reverse unless the government injects money into the area and creates jobs.

For the government, tax revenue will be lower if inactivity rates, unemployment and under employment is high. This restricts government spending and makes it hard to keep the quality of services high. Tax rates or government borrowing may have to rise.

The economy will be operating inside its PPF. This means output, and therefore living standards, could be higher.

## Exam practice

**1.(a)** Frictional unemployment is when workers are unemployed for short lengths of time between jobs. It takes time for the labour market to match the available jobs with those seeking work. Frictional unemployment arises due to the time spent searching for jobs or the time spent transitioning between jobs. In Ethiopia, frictional unemployment is relatively high because individuals must spend time travelling around urban areas to find the job advertisement boards. Greater use of ICT would reduce the time spent job searching and therefore would reduce frictional unemployment in Ethiopia. The use of ICT would match job seekers with available jobs more quickly and effectively.

**(b)** The use of technology and technological advances can have both a positive and negative impact on unemployment in Ethiopia.

Extract A mentions the World Bank report which concluded that the high cost of job searching is a key factor which explains Ethiopia's high unemployment rate. Currently, individuals in urban cities, such as Addis Ababa, spend both time and money travelling around the city to find job advertisements on physical boards. This suggests the use of ICT, to improve job searching, would make matching available jobs with those seeking worker quicker and more effective. So, the use of technology would reduce frictional unemployment.

However, Extract B looks at the impact technology may have on replacing workers by machines. It has been estimated that 85 per cent of all jobs in Ethiopia are in danger of being lost, due to technological advances. This is partly because many jobs in Ethiopia are likely to be easily automatable. It is also because multinationals, which may have set up production plants in Ethiopia to manufacture goods to take advantage of cheap labour, may find that moving production back home and using capital-based production methods still enables them to produce goods cheaply. This means Ethiopia has a high risk of unemployment rising significantly.

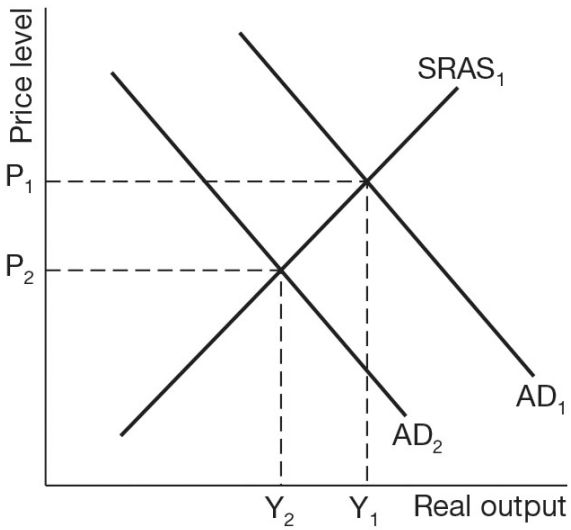
Overall, the effect may depend on how large frictional unemployment currently is and to what extent the existing multinationals based in Ethiopia would be able to use capital in their production process. It may also be the case that employment from multinationals is not a high proportion of Ethiopian workers.

Even if new technology does replace some jobs, it is also likely that other types of jobs will be created in the process. For example, automation introduced in the production process for one type of industry may create retail jobs in that industry. Provided Ethiopian workers are occupationally and geographically mobile, then the effect on Ethiopia's unemployment rate may not be adverse. However, the World Bank report does suggest that Ethiopia may be one of the countries that will be worst affected by the rise in automation, at least in the short run.

**2.(a)** Possible causes include property bubble bursting (could be linked to structural unemployment) and the recession. These are also interrelated.

Between 2007 and 2013, the unemployment rate in Spain increased from approximately 8 per cent to 26 per cent. During this period, the annual percentage change in real GDP was mostly negative. For example, from 2008 until 2013, there was persistent negative economic

growth, with economic growth at its highest at 0 per cent in 2010. This shows Spain was in a sustained recession during this period. This recession started when the property bubble burst in Spain and was linked to the global financial crisis. A recession is when there are at least two consecutive quarters of negative economic growth. A fall in aggregate demand means a falling demand for goods and services. A fall in aggregate demand will reduce real GDP from Y1 to Y2. Less labour will be needed by firms, so unemployment will rise. This is called cyclical or demand-deficient unemployment.




**(b)** In 2007, both Spain and Brazil's unemployment rate was similar. Spain's unemployment rate was approximately 8 per cent and Brazil's was approximately 11 per cent. By 2016, Spain's unemployment rate was 20 per cent, while Brazil's was approximately 12 per cent. Between 2007 and 2016, Spain's unemployment peaked at 23 per cent in 2013, while Brazil's highest unemployment rate was 12 per cent in 2016.

The main cause of Spain's higher unemployment rate is linked to Spain's negative economic growth over this period. Between 2008 and 2013, Spain experienced negative economic growth. This is evidence of a recession lasting five years. During this period, unemployment rose from approximately 12 per cent to 23 per cent. From 2013 onwards, Spain's unemployment started to fall. This would be expected since its economic growth rate was positive from 2014 onwards. By 2016, Spain's unemployment rate had fallen to 20 per cent.

In contrast, although Brazil experienced a fall in the rate of economic growth between 2007 and 2009, its growth was still positive in this period. Brazil's economic growth was positive between 2007 and 2014. This means real GDP is increasing, so more labour would be demanded to produce this extra output. As expected, the unemployment rate for Brazil fell from approximately 11 per cent in 2007 to 7 per cent in 2014. As economic growth becomes negative from 2014 onwards, unemployment starts to rise.

So, one of the main causes of Spain's higher unemployment is due to its high cyclical unemployment, compared to Brazil's, over this period. However, there are also likely to be other causes too. Brazil entered a two-year recession from 2014 onwards (its economic growth rate was approximately −3 per cent in both 2015 and 2016) and yet its unemployment rate only rose from 7 per cent to 11 per cent. Spain experienced a much

more dramatic rise in unemployment when its economic growth was negative, e.g. between 2008 and 2010 unemployment rose from 11 per cent to 20 per cent. One reason why Spain's unemployment rate might be higher than Brazil's might be due to high structural unemployment. The large-scale loss of jobs in construction (2.7 million worked in the construction sector in 2007), combined with these workers not having employable skills for other sectors, meant Spain experienced much higher rates of unemployment. This mismatch of skills with jobs available was probably another significant cause of unemployment for Spain.

**3.** Among the EU countries, Spain has experienced one of the highest unemployment rates since the global financial crisis. The combined effect of the property bubble bursting, which caused large-scale job losses in the construction industry, and the overall impact of the global financial crisis, meant Spain experienced a five-year recession. As a result, unemployment was high and sustained.

There are many costs to the economy of a sustained high level of unemployment on the economy. The economy will be operating well below its potential output; this creates a large negative output gap. Operating inside the production possibility curve means output is lower than it could potentially be, if all factors of production are fully employed. This means real GDP per capita will be lower than it could be. Therefore, living standards for many individuals will be low; particularly those without jobs. If individuals who have lost their jobs remain unemployed in the long term, the impact on the economy is more significant. This is because these individuals are more likely to become 'unemployable'. Employers assume they have outdated skills and they become less attractive to even interview. These individuals may become discouraged to carry on looking for work. The size of the labour force will shrink and the PPF may shift inwards (the LRAS may shift to the left).

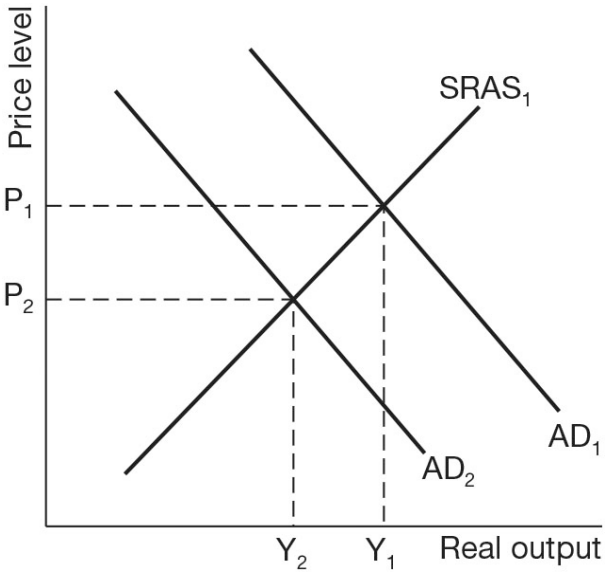
Those in jobs are also likely to experience falling real wages. This is because high unemployment will keep nominal wages low. If inflation is higher than nominal wage increases, then real wages will fall, so many people will potentially be affected by falling living standards if unemployment is high. If individuals who are experiencing a fall in their real incomes start to borrow more money to finance consumption, then this may cause long-run problems for the economy if this debt is unsustainable.

It may also be the case that high unemployment is worse in certain regions of Spain's economy. If there is structural unemployment, for example, when the construction industry collapsed, then this is likely to impact some regions more than others. This means a local area may quickly fall into decline, with poverty, personal misery and crime rates rising significantly in these regions. This is because there will be a large negative multiplier effect resulting from closure of a local industry. This problem can be minimised if the government has a well-funded and targeted regional policy. These costs are also minimised if workers who have lost their jobs are occupationally and geographically mobile.

The Spanish government will also experience a fall in tax revenue as unemployment rises. This happens at the same time as welfare payments are likely to be needed to support those who have lost their jobs. The government may also want to inject money into the circular flow of income, to kick start the multiplier effect, to help increase real GDP. However, the fall in tax revenue might limit how much it can spend, unless the government is prepared to borrow money to finance this (budget deficit).

However, there may be benefits of high unemployment. If unemployment has risen because aggregate demand has fallen, then this will reduce the price level. This may be beneficial to

Spain's economy if inflation has been too high. A fall in aggregate demand reduces the price level from P1 to P2.



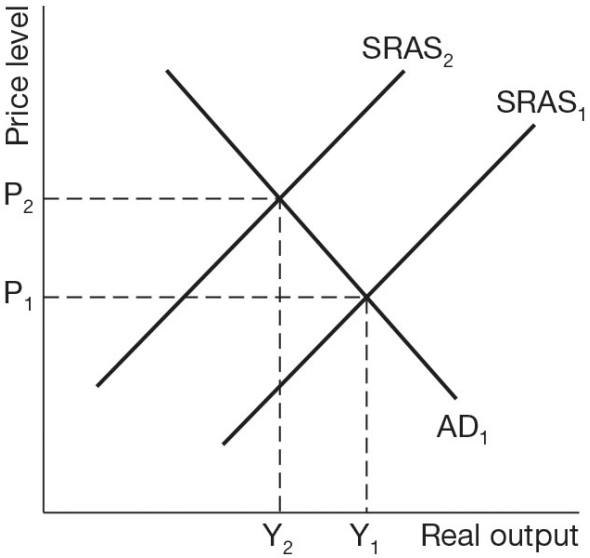

Experience of unemployment may also spur some individuals to start their own business. This increase in entrepreneurship may help economic growth in the long run. However, there is the danger of the opposite if there is under employment as a result.

The costs of unemployment are high, but they can be minimised if the Spanish government is able to increase its spending sufficiently or redirect its spending. For example, the government could spend money on training programmes to help provide the unemployed with up-to-date skills. When the economy picks up, employers will then be able to recruit suitable workers. This will also help if the cause of unemployment is structural. This means individuals can be occupationally mobile. The fall in living standards can also be minimised if the government is able to ensure welfare payments are set at reasonable levels. This may be more difficult to do if tax revenues remain low for too long.

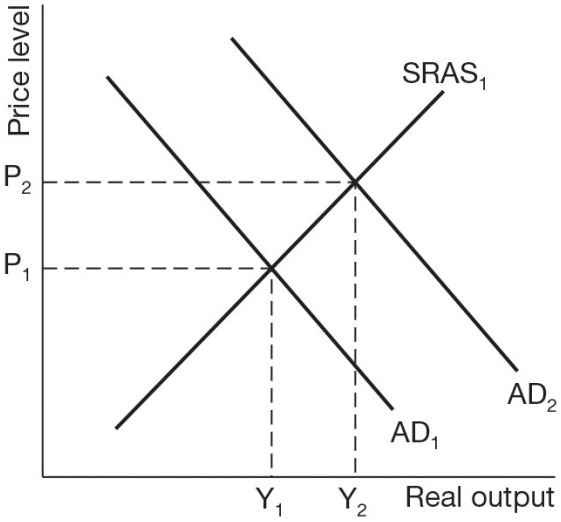
# 26 Inflation (causes and effects)

## Activity 1

**1.(a)** The OECD reported that headline inflation was rising in most countries because of higher energy prices. An increase in energy prices increases costs for firms. This will cause cost-push inflation. A rise in energy costs shifts the SRAS curve to the left. The price level rises from P1 to P2.




**(b)** An increase in global growth suggests aggregate demand will increase for many economies. An increase in aggregate demand will cause demand-pull inflation. Keynesians would argue that an increase in aggregate demand will be particularly inflationary as the economy nears full employment. However, a SR AD/AS diagram illustrates the general view that an increase in aggregate demand, in the short run, will cause excess demand at the existing price level. This causes the price level to rise from P1 to P2 (see diagram below).



## Activity 2

**(a)** In May 2017, the unemployment rate in the eurozone was 9.5 per cent. However, between 15 and 18 per cent of the workforce were without jobs or under employed. This suggests that wage bargaining pressures remain very weak. Since wages are a significant cost for firms, if wage growth remains subdued, then cost-push inflation will be low. A high unemployment rate also suggests aggregate demand is weak in the eurozone. This means demand-pull inflation is low. Therefore, the eurozone's inflation is likely to be low in 2017.

## Activity 3

**(a)** The fall in inflation in India, from approximately 10 per cent on average between 2009–14 to 5.6 per cent in December 2015, was due to both a fall in demand-pull inflation and cost-push inflation. 'Economic slack' suggests aggregate demand had fallen. Tight monetary policy, with higher interest rates, would cause a fall in aggregate demand. A fall in aggregate demand pushes the price level in the economy down from P1 to P2 in Figure 1 below.

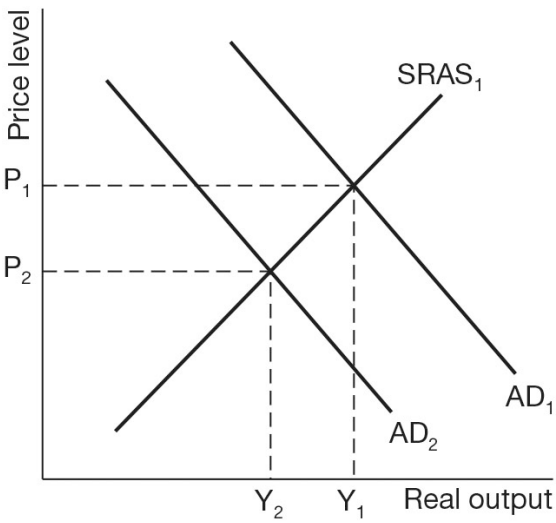



Figure 1

Lower global commodity prices would also keep export revenues lower for economies who export commodities. This would also reduce aggregate demand. For those economies who import commodities, a fall in global commodity prices would reduce costs for firms. This reduces cost-push inflation from P1 to P2 (Figure 2 below). A fall in costs shifts the SRAS to the right.

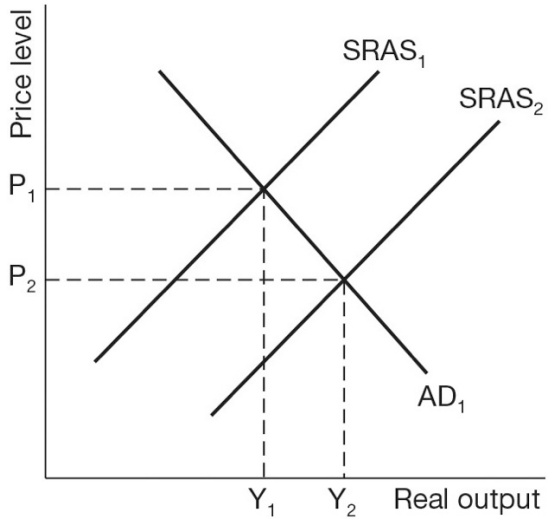



Figure 2

**(b)** High inflation would reduce the price competitiveness of Indian goods and services if India's inflation rate is higher than its main trading partners. This is likely to have a negative impact on India's trade in goods and services on the current account of the balance of payments. This is likely to restrict economic growth for India as injections into the circular flow of income will fall.

Secondly, workers in India may experience a fall in living standards. If inflation is higher than the rise in nominal wages, then real wages will fall. This means workers will experience a fall in their purchasing power. Their living standards will fall since they cannot buy the same volume of goods and services with their wages.

## Activity 4

**1.(a)** The pensioner on a fixed income lost 2.8 per cent of her purchasing power in 2012 and 2.6 per cent in 2013.

**(b)** The saver saw a real loss of 2.3 per cent on her savings in 2012 and a real loss of 2.1 per cent in 2013.

**(c)** It is not possible to say whether the taxpayer was worse off in 2013 than in 2012 because there are no figures to compare the fiscal year 2013/14 with 20012/13. However, in April 2013, the increase in tax allowance was 16.5 per cent, considerably higher than the rate of inflation for 2012 or 2013. Hence, the income taxpayer will have been better off in real terms as a result of this tax change.

**(d)** The mother will have been worse off in the last week of December 2013 than in the first week of January 2012. This is because the real value of the child benefit was being eroded by inflation. With inflation running at 2.8 per cent in 2012 and 2.6 per cent in 2013, the £20.30 paid in the first week of January 2012 was only worth approximately £19.22 in the last week of December 2013 (£20.30 x 0.972 x 0.974).

## Exam practice

**1.(a)** A: incorrect – if oil prices rose between 2014–16, cost-push inflation would rise. However, between 2014 Q2 and 2016 Q3, the inflation rate fell.

B: incorrect – if aggregate demand was falling from 2016 onwards, demand-pull inflation would start to fall. However, from 2016 Q3, the inflation rate is rising.

C: correct – a rise in a sales tax would increase cost-push inflation. April 2014 is the start of 2014 Q2, the inflation rate is at its peak during this quarter.

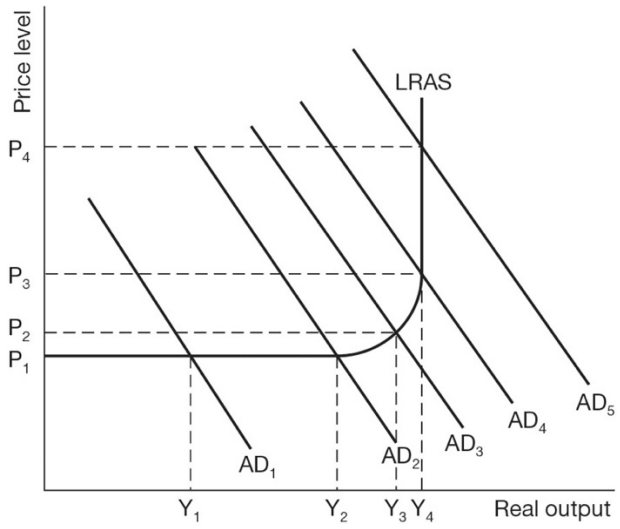
D: incorrect – if unemployment falls, then it is likely that aggregate demand is rising. This would increase demand-pull inflation. However, the inflation rate is falling from 2014 Q2 to 2016 Q3.

**(b)** Deflation is defined as a general fall in prices across an economy. If the inflation rate is negative, then there is deflation. In Figure 6, Japan had four periods of deflation for the period shown. Firstly, there is deflation in 2011 Q1 and Q2. Deflation then occurred briefly in 2011 Q4, then between end of 2012 Q3 until 2013 Q2 and finally end of 2016 Q1 until the end of 2016 Q3. In all these periods the inflation rate is negative.

**2.** Disinflation is defined as a fall in the rate of inflation. If the inflation rate is positive, but falls, then prices are still rising but at a slower rate. Inflation in emerging markets had fallen from 20 per cent in 1996, to 2.5 per cent in July 2017. This is disinflation. If the disinflationary trend is at an end, then this means that the inflation rate is increasing.

**3.(a)** An increase in aggregate demand is a cause of demand-pull inflation. Aggregate demand is expected to rise in 2017. The rise in real GDP was expected to be between 2 per cent and 3 per cent. However, the MAS have reported that demand-pull inflationary pressures would be weak, as conditions in the labour market remained slack. This suggests that the economy remains below full employment. According to Keynesian analysis, a rise in aggregate demand will not cause any inflation or only a small amount of inflation if the economy remains substantially below full employment, e.g. an increase in aggregate demand from AD1 to AD2 causes no change in the price level. An increase in aggregate demand from AD1 to AD3, causes a small increase in the price level from P1 to P2. Singapore would only experience significant inflationary pressures if the economy was close to or at full employment, e.g. aggregate demand rising from AD2 to AD5 causes high inflation. A slack labour market will keep cost-push inflation low. Workers will be unable to exert pressure on employers to increase wages if unemployment is high.

The overall impact of rising aggregate demand on Singapore's inflation may be hard to predict since it may be hard to know precisely how close to full employment the economy is. This is partly because the multiplier process takes time for an initial increase in aggregate demand to work its way through the economy. This time period can vary and the value of the multiplier itself changes over time and can only be estimated.

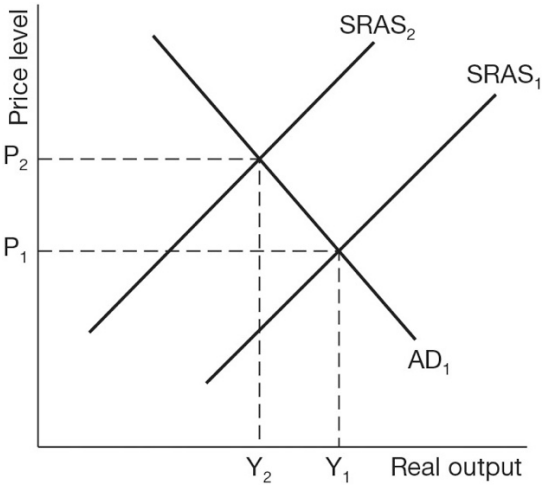



**4.(a)** In 2009, Zimbabwe moved to a currency dominated by the US dollar. The rand is the currency in South Africa. A fall in the value of the rand against the dollar means fewer dollars exchange for 1 rand. This means goods and services imported into Zimbabwe from South Africa are now cheaper in dollars. This means that 'Zimbabwe began to import deflation'. Any goods, services or raw materials imported from South Africa are now cheaper than they had been before; 'prices have plummeted'. This will push down Zimbabwe's inflation rate. There may also be a risk of deflation overall if there are a significant amount of imports from South Africa.

**(b)** Deflation is when prices in general are falling. The inflation rate will be negative. Deflation can be a concern for an economy. When deflation exists, consumers may delay consumption. This is because they expect prices to be cheaper in the future, so it is logical to delay a purchase and buy it in a future time period instead. However, this delay means that spending today falls. A fall in aggregate demand will set off a negative multiplier effect. As companies experience falling sales, they will start to lay off workers and reduce investment. This leads to a 'tail spin of shrinking demand and falling production'. The fall in investment and rise in savings (if consumption falls then savings rise) lead to a net withdrawal from the circular flow of income. Unemployment will rise. In Zimbabwe there is already evidence of falling aggregate demand, since industrial production had fallen from 57 per cent in 2011 to just 34 per cent in 2015. Falling aggregate demand is causing output, and therefore production, to fall.

However, Figure 7 in the Student Book shows the impact on economic growth is not too significant yet. In 2015, economic growth was approximately 2 per cent, and in 2016 this had fallen only to 0 per cent. However, it may be that the effects of deflation have not been fully felt yet. Economic growth peaked at approximately 16 per cent in 2011, so growth rates by 2016 were clearly much lower. However, the hyperinflationary period was worse for Zimbabwe, where economic growth was approximately −16 per cent. So, the impact of deflation on Zimbabwe's economy is less severe, at the moment, than the impact of hyperinflation. However, it is probably too early to make a judgement. If deflation does stick, then the government does not have the resources to make a significant injection to counteract falling demand. They have limited tax revenue to finance government spending. This means the costs of deflation may end up being very high for Zimbabwe.

**5.** One cause of inflation is cost-push inflation. A fall in the value of the lira means 1 lira exchanges for less foreign currency. So, the price of imported goods and services, in terms of lira, will increase. Foreign currency has become more expensive. This will cause an increase in costs for firms who import raw materials or goods and services. At the same time, energy costs are rising, and this will have an impact on costs for most firms. Both of these will cause cost-push inflation. The SRAS curve will shift to the left (an upward shift). The price level will rise from P1 to P2. Figure 8 in the Student Book shows that inflation rose from approximately 9.2 per cent in January 2017, to nearly 12 per cent by April 2017.




## 27 Characteristics of aggregate demand

### Activity 1

(a) AD = C + I + G + X − M

(b) Exports minus imports was −2 per cent of GDP for France. The minus sign means the value of imports is greater than the value of exports. There is a deficit on the current account of the balance of payments for France.

However, for China, exports minus imports was +3 per cent of GDP. The positive sign means the value of exports was greater than the value of imports. There is a surplus on the current account of the balance of payments for China.

(c) The extract mentions consumption and exports minus imports. The other components of aggregate demand include investment and government spending. Consumption, as a percentage of GDP, is significantly higher in France (57 per cent) than China (34 per cent). Exports minus imports also differs as a percentage of GDP, but by a smaller extent. This therefore suggests that either investment and/or government spending, as a percentage of GDP, must be significantly higher in China compared to France.

### Activity 2

The following answers assume that the cause of the changes in the components of aggregate demand are NOT due to the price level changing.

**(a)** The increase in real household consumption in Chile, in 2013, will shift the AD curve to the right.

**(b)** An increase in investment in the Netherlands will shift the AD curve to the right.

**(c)** A fall in interest rates will increase consumption (cheaper to borrow money to finance consumption and less incentive to save) and increase investment. The AD curve will shift to the right.

**(d)** The value of the pound falling makes UK goods and services more price competitive on international markets. It also makes imports more expensive in terms of pounds. So, exports rise and imports fall. The AD curve will shift to the right.

**(e)** Housing market crashes in the UK and USA. This reduces the wealth of consumers; this is likely to reduce their spending. So, the AD curve shifts to the left.

**(f)** An improvement in the current account surplus means exports for Slovenia are now greater than imports by a bigger amount. This means the AD curve has shifted to the right.

## Exam practice

**1.(a)** GDP = C + I + G + X − M = 9622 + 2284 − 2359 = 9547 IDR trillion.

Exports as a percentage of GDP = 2284/9547 x 100 = 23.9.

Exports are 23.9 per cent of Indonesia's GDP.

**2.** (c) is correct. (a) causes a movement along the demand curve, (b) causes a shift to the right, (d) causes a shift to the right.

**3.** Aggregate demand is total spending in an economy. The components of aggregate demand are consumption, investment, government spending and exports minus imports. In 2013, Spain experienced a significant rise in exports and, in 2014, consumption and investment also started to increase again after years of negative growth. This suggests that GDP (aggregate demand) was starting to rise again after year-on-year falls in total spending since 2008. However, by 2014, aggregate demand had still not reached its 2007 level.

**4.** Aggregate demand is total spending in an economy. National expenditure is measured as GDP. The components of aggregate demand are consumption, investment, government spending, and exports minus imports. In Japan, by March 2017, there had been five quarters of rising GDP. The rise in consumption and exports over these five quarters was the most significant reason why aggregate demand was rising overall. In recent years, consumption had been falling. It is likely that investment and government spending remained broadly constant over the recent period.

# 28 Consumption

## Activity 1

**(a)** Table 1 in the Student Book shows that consumption and disposable income have broadly increased over time. What is more, there is a strong correlation between increases in consumption and increases in income, such that consumption, for most of the period, has only been a little less than income. For example, the growth in consumption between 1997 and 2013 was 31 per cent. The growth in income was 38 per cent.

**(b)(i)**

| Table 1 | | |
|---|---|---|
| | APC | MPC |
| 1998 | 0.91 | 1.35 |
| 2002 | 0.91 | 1.34 |
| 2006 | 0.96 | 1.12 |
| 2010 | 0.91 | 0.48 |
| 2013 | 0.94 | –6.56 |

**(ii)** For a household, saving is the difference between disposable income and consumption. In each of the years, consumption was less than disposable income. Hence, households added to their stock of savings by saving a proportion of their disposable income. The proportion saved was highest in 1998, 2002 and 2010 when the APC was at its lowest.

Note that in 2013, the MPC was −6.56. However, looking at the original consumption and disposable income figures, there was broadly no change in either variable between 2012 and 2013. The very small actual changes produced this rather unusual number of −6.56.

## Activity 2

**(a)** Purchases of consumer durables and non-essential items, such as holidays, are affected by consumer confidence. A rise in consumer confidence should increase consumer spending. Individuals are likely to spend a higher proportion of their disposable income. This may be because they believe their future income will rise, so they are prepared to save less of their current income. The extract supports this. Young people in China have lived through a period of rising household income, so they are more likely to believe that good times will continue. A rise in consumer confidence should increase the average propensity to consume in an economy.

**(b)** A rise in house prices, with home ownership, also creates the wealth effect on consumption. A rise in asset prices means individuals are more confident to spend their current income, rather than save, since their store of wealth is rising. A rise in house prices also means individuals are able to borrow more money to finance consumption. This is because more borrowing can be secured against the value of their house.

## Activity 3

**(a)** Electronic gadgets, cars.

**(b)** The increase in the availability of credit in China has increased consumption. This is largely due to less traditional lenders being allowed to lend money after regulators opened the consumer finance market in 2014. In the past, only banks were allowed to lend. Now companies, through salespeople in shops and car parks, can offer loans to consumers.

**(c)** Advantages of increased lending means China's economy can become less reliant on investment and exports as a means of increasing aggregate demand. Economic growth can now be created more by rising consumption. However, if lending is irresponsible, consumers may end up with too much debt. This may cause problems with repayments in the future and may cause future consumption to fall. Some individuals who end up paying excessively high interest rates may also be exploited.

## Activity 4

| **Table 2** | | | | |
|---|---|---|---|---|
| Year | Savings US$ | Disposable income £bn | Average propensity to save | Marginal propensity to save |
| 1 | 7.5 | 100 | 0.075 | |
| 2 | 7.9 | 102 | 0.077 | 0.20 |
| 3 | 8.0 | 103 | 0.078 | 0.10 |
| 4 | 8.3 | 106 | 0.078 | 0.10 |
| 5 | 8.9 | 111 | 0.080 | 0.12 |
| 6 | 9.0 | 112 | 0.080 | 0.10 |

## Exam practice

**1.(a)** The fall in inflation, combined with income increases, suggests that real incomes are rising at a faster rate than in previous periods. A rise in real disposable income should increase consumption. The extent to which consumption will rise depends upon the value of the marginal propensity to consume. The MPC shows what proportion of additional disposable income is spent, rather than saved.

**(b)** The recent rise in consumer confidence in Malaysia is likely to increase consumer spending. A rise in confidence, perhaps due to low unemployment and increased job security, means consumers are likely to spend a larger proportion of their income. This is partly because an increase in confidence can be related to a greater willingness to borrow money. Individuals may be more prepared to borrow money if they are confident that their wages will rise over time and they have job security. There is evidence of this in the extract. Loan applications had risen in Malaysia for the purchase of consumer durables, such as cars. Car sales had risen by 4.7 per cent between 2016 and 2017.

However, the extent to which consumption will rise will depend partly on the availability of credit for individuals to borrow from financial institutions. Although demand for credit may rise, supply of credit may remain restricted, possibly due to government intervention. It also depends on the attitude towards borrowing. For example, the extract suggests individuals in Malaysia are more prepared to borrow than individuals from the Philippines.

**2.(a)** AD = C+I+G+X − M = 293 + 85 + 125 + 89 − 94 = 498 trillion yen.

Consumption as a percentage of aggregate demand = 293/498 x 100 = 58.8

Consumption is 58.8 per cent of Japan's aggregate demand in 2015.

**(b)** The average propensity to consume is the proportion of disposable income which is spent. In Japan, the average propensity to consume is expected to rise in 2017. This means a greater proportion of total disposable income in Japan will be spent, rather than saved.

**(c)** Figure 4 shows household savings as a percentage of household disposable income. From 2017, the savings ratio is forecast to fall from approximately 2.5 per cent in 2017 to 1.8 per cent in 2018. This suggests a greater proportion of household disposable income will be spent in 2018, compared to 2017. The extract suggests one reason for this is due to the 'wealth effects stemming from a rise in stock prices'. A rise in stock prices, for those individuals who hold stocks, means the value of their wealth has risen. Therefore, these individuals may feel less incentive to save such a large proportion of their current income, since the value of their wealth is believed to be more secure. A rise in stock prices also provides an opportunity to sell some of these stocks, while the price is high, and spend some of the proceeds.

**(d)** The savings ratio show what proportion of total disposable income in an economy is saved by households. In 2016, Japan's savings ratio was 2.7 per cent. This shows that, for every 100 yen of total disposable income, approximately 3 yen is saved rather than spent. In the mid-1970s the savings ratio was 20 per cent. This shows that for every 100 yen of total disposable income, 20 yen was saved. This is a significant difference and is often explained by Japan's demographic changes over this period. An ageing population means the median age of Japan's population has increased. In comparison with other economies, Japan has one of the most ageing populations. This age group, which makes up a large proportion of Japanese citizens, will often use their savings to help finance their old age, once they have stopped working. This will therefore reduce the savings ratio for Japan. By contrast, China has one of the highest savings ratios in the world. One reason to explain this is the high proportion of their population which is middle-aged. Their one child policy, now overturned, has meant they are also experiencing an ageing population. For China, a high proportion of middle-aged groups partly explains why their savings ratio is high. This age group tend to save more than younger people, partly to plan for their old age. The age distribution of a population is therefore likely to be a significant factor which may explain changes in the savings ratio over time, for an economy, or differences in the savings ratio between countries.

However, although age distribution is a significant factor, the savings ratio for an economy can still change over time, even when the age distribution remains constant. Differences between economies are not fully explained by age distribution differences. For example, other reasons why China has a high savings ratio include the relative difficulty of accessing credit. The financial and banking sector is underdeveloped and has been heavily regulated too. In China, the welfare system is also limited, so individuals do not have a safety net unless they save enough money during their working life. There may also be strong cultural

differences, between countries, in attitudes towards borrowing and spending. Changes in the performance of an economy, over time, will also have an impact on the savings ratio. For example, at the height of the global financial crisis, the savings ratio was higher than in 2014, when most economies had largely recovered. A fall in consumer confidence, greater scarcity in availability of credit and falling values of wealth, all contributed to a rise in the savings ratio.

Overall, in the long term, it is likely that significant changes in the age distribution for an economy will have a big impact on the savings ratio. Young and old people tend to save less, while middle-aged groups save more. However, over shorter periods, any changes in the savings ratio for an economy are more likely to be affected by the performance of an economy. This is because factors such as cultural attitudes towards spending, the development of the banking system and the state welfare system are likely to remain broadly constant, in the short run, for an economy.

In comparison with other economies, any differences might be explained by different population characteristics, whether these economies are in a recession and other factors such as cultural differences etc. It is therefore not possible to single out one factor as more important than others.

## 29 Investment

### Activity 1

**(a)** There are a number of examples of physical capital in the photograph that represent investment at some point in the past for the bank. There are cash dispensers and rapid deposit machines or paying-in machines at the front of the area on the photograph. On the back left are reception windows where customers can also make deposits and payments. Bank employees at these desks operate computer terminals to handle the transactions of customers. The building in which the bank is situated is also an example of physical capital.

**(b)** The people in the photograph are examples of human capital. The customers shown standing in the queue, for instance, will have received education at a school, college or university and will have been further trained by their employer. The bank employees serving the customers will have received training from the bank as well as having received an education at school, college or university.

**(c)** The customers of the bank are likely at the moment or at other times to deposit money with the bank. This is an example of saving.

**(d)** All the physical capital shown is depreciating minute by minute. In 10 years' time, almost all the physical capital shown in the photograph will have been replaced, while the building itself will need continuous maintenance.

### Exam practice

**1.(a)** Investment is spending on capital goods, such as new factories, machinery, technology and vehicles. Investment is a component of aggregate demand. Extract A mentions that investment in 2016, by private sector firms in India, remained stagnant despite a favourable economic growth outlook.

**(b)** In India, the annual percentage growth in investment fell from 12 per cent in 2011 to approximately 1 per cent in 2016. Although investment spending is rising, it is rising at a slower rate (Figure 3 in the Student Book). Figure 4 (Student Book) also supports a lower level of investment spending compared to other components of aggregate demand. In 2011, gross fixed capital formation in the private sector as a percentage of GDP was 27 per cent. By 2015, this had fallen to approximately 22 per cent. One likely cause of this was high interest rates in India. Many firms finance investment by borrowing from banks. High interest rates increase the cost of borrowing and make more investment projects unprofitable to undertake. In October 2015, the central bank in India cut interest rates by ½ per cent in an attempt to raise investment. This suggests that high interest rates were viewed to be a problem holding back investment spending.

**(c)** In 2012, economic growth was just below 6 per cent. Extract A refers to the favourable economic growth outlook, in India, with real GDP projected to increase from 7.4 per cent in 2016 to 7.6 per cent in 2017. This should increase the level of business investment. An increase in forecasted growth should mean many firms expect sales to increase. Many will need to invest in new capital goods so that production can increase to meet the expected increase in sales. The idea that investment is linked to changes in output is called the accelerator theory.

A more favourable economic outlook is also likely to boost business confidence. If this is the case, then investment will rise for this reason too.

However, despite the favourable economic growth, Extract A states that private sector investment shows little signs of revival. 'While firms have spare capacity', the link between faster economic growth and firms needing to invest in more capital goods breaks down. However, once firms no longer have spare capacity, higher economic growth should start to cause rising investment. Firms in India are also holding too many debts, so if they need to finance investment by borrowing at this stage they may be reluctant to borrow. Again, economic growth should eventually allow retained profits to increase and debts to be paid off. So, in the long run, investment should start to rise again.

Extract B also states that firms may be waiting to make sure that domestic demand is strong enough and for the global outlook to be more positive. It seems that, at the moment, firms may lack confidence that the forecast in higher economic growth is accurate. This lack of confidence, combined with the lack of access to credit, may counteract the favourable economic growth outlook in India. Overall, the impact on business investment may be limited. The favourable growth outlook is also still significantly below the 10 per cent economic growth rate recorded in 2010. So, by India's standards, this might also explain why business confidence is still relatively low.

**2.** There are many factors which affect the level of investment in an economy. The cost of credit, or the rate of interest on loans, is one factor. Many firms finance investment by borrowing from financial institutions. For example, approximately 18 per cent of all investment in India, in 2014, was financed by borrowing from banks. At the same time, 30 per cent of firms in India used bank loans as a source of finance for investment. The rate of interest will therefore affect the demand for loans. If interest rates rise, then the cost of investment will rise, making some investment projects no longer profitable. Therefore, a rise in interest rates is likely to reduce investment (and vice versa).

However, although borrowing to finance investment is not unusual, the statistics above suggest that many Indian firms are using retained profits to finance investment. In an

economic environment when firms are making high profits, it is likely that investment will also be high. This is particularly the case when firms expect economic growth to remain high. If sales are forecast to grow, then a firm will invest in new capital goods as a means of increasing production. This is called the accelerator theory. Many firms finance this using retained profits, so any movements in the rate of interest will not impact so much on investment spending compared to changes in the level of retained profits. The rate of interest on savings may affect the level of investment financed by retained profits. If the interest rate on savings rises, then some firms may decide it is more profitable to save the retained profits in banks or money markets. The return on an investment project may be lower than the rate of interest on savings. In this case, the rate of interest on savings may be a more significant factor influencing investment than the rate of interest on loans.

A fall in interest rates will also have a limited impact on the level of investment if the availability of credit is restricted. In the global financial crisis, liquidity became scarce in the banking sector, so the fall in interest rates to record lows in some economies, such as the UK, had little effect on the level of investment.

If many firms finance investment using retained profits, is also likely that any changes in the corporate tax rate will have more of an impact on the level of investment compared to changes in the rate of interest. In the USA, President Trump intends to cut corporate tax rates from 35 per cent to 20 per cent. Provided the economic outlook is positive, this may lead to a significant rise in investment.

Overall, the rate of interest will affect the level of investment, but it is unlikely to be the most significant factor. For any economy, the impact of a change in interest rates on the level of investment will depend upon the extent to which firms use borrowing as a means of financing investment. For any investment decision, firms will weigh up whether the benefits of an investment project outweigh the costs. The expected benefits of investment will depend on the economic outlook for an economy and the level of business confidence. These factors are just as significant as the cost of borrowing, the level of retained profits or availability of credit. In practice, many factors influence investment spending.

## 30 Government expenditure and net trade

### Activity 1

A recession means real GDP has fallen over at least two consecutive quarters. Brunei was entering its fifth year of recession in 2017. During a recession it is likely that government expenditure will rise automatically. A fall in real GDP is associated with a rise in unemployment. This means more government expenditure will automatically be spent on welfare payments, assuming Brunei uses government spending to support those on low or no incomes. The government may also choose to spend more, to try to boost aggregate demand.

### Activity 2

South Africa's economic growth rate, at 0.3 per cent in 2016, was the lowest it had been for the previous 16 years. It is likely that real incomes were growing at a faster rate for South Africa's main trading partners. The net trade balance is the value of exports minus the value of imports. For South Africa, its net trade balance is likely to improve. If real incomes are

increasing at a faster rate in other economies, then South Africa's exports are likely to rise more than its imports. A faster rise in real incomes in other economies will cause those economies to suck in more imports from South Africa, compared to the extra demand, from South African consumers, of foreign goods and services. South Africa should experience a falling trade deficit, or a rising surplus.

## Exam practice

**1.** The fall in the value of Egypt's currency means 1 Egyptian pound exchanges for less foreign currency. This makes Egypt's goods and services cheaper on foreign exchange markets. Egypt's exports of goods and services become more price competitive. This increases the demand for exports. At the same time, imports become more expensive because more Egyptian pounds will need to be exchanged to purchase foreign goods and services. This reduces the demand for imports. Therefore, the value of exports is likely to rise, and the value of imports is likely to fall. Therefore, the net trade balance is likely to improve. Any trade deficit should narrow, or any surplus should widen.

**2.** (b) is correct – the net trade balance is US$19 billion in 2016, US$30 billion in 2017 and US$46 billion in 2018. This shows an improvement in the net trade balance each year.

(a) incorrect – a surplus and not a deficit is forecast for 2018.

(c) incorrect – a surplus (+) and not a deficit (−) is forecast for 2017.

(d) incorrect – the trade surplus is forecast to widen over the period 2016–18.

**3.** The net trade balance is the value of exports minus the value of imports. Figure 3 in the Student Book shows Japan's net trade balance on goods and services (the balance of trade on goods and services). In both 2013 and 2014, Japan had a deficit on the balance of trade on goods and services. The value of imports was greater than the value of exports. However, the deficit narrowed from approximately US$30 billion in 2013 to approximately US$24 billion in 2014. In contrast, Japan had a surplus on its net trade balance in 2015 of approximately US$3 billion.

**4.** (Possible causes in the extract are economic growth, recovery in overseas economies and a fall in the value of the yen. Answers to questions 2 and 3 would help you to analyse each of these. The answer below has picked the fall in the value of the yen as one cause of improvement.)

Figure 3 in the Student Book shows Japan's net trade balance over the period 2013–15. The net trade balance is the value of exports minus the value of imports. Over this period, Japan's net trade balance improved. Japan's trade deficit narrowed from approximately US$30 billion in 2013 to approximately US$24 billion in 2014 before moving to a surplus of approximately US$3 billion in 2015. Figure 2 shows this surplus is expected to widen over the period 2016–18. By 2018, the surplus is forecast to be US$46 billion.

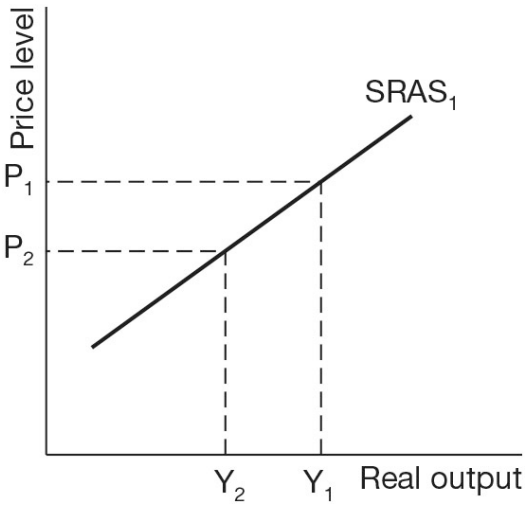
One cause of the improvement was the fall in the value of the yen in 2016. This would explain the widening of the surplus from 2016 onwards. Before the US election, approximately 105 Japanese yen exchanged for US$1. However, after the election approximately 115 Japanese yen were needed to obtain US$1 on foreign exchange markets. This makes US goods and services less price competitive in terms of the yen currency. At the same time, US consumers will need to convert less US dollars to buy

Japanese goods and services. Japanese goods and services become more price competitive for US consumers. Therefore, demand for Japanese exports should rise. At the same time, imports into Japan should fall. Therefore, Japan's net trade balance is likely to improve.

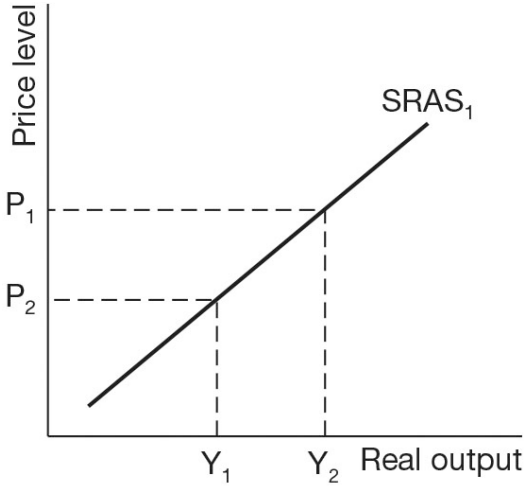
## 31 Aggregate supply

### Activity 1

**(a)** Brazil's real GDP contracted by 3.6 per cent. A fall in demand and output, in the short run, is likely to cause some firms to cut prices. This will cause a movement along the short-run aggregate supply curve. Output falls from Y1 to Y2 and the price level falls from P1 to P2.



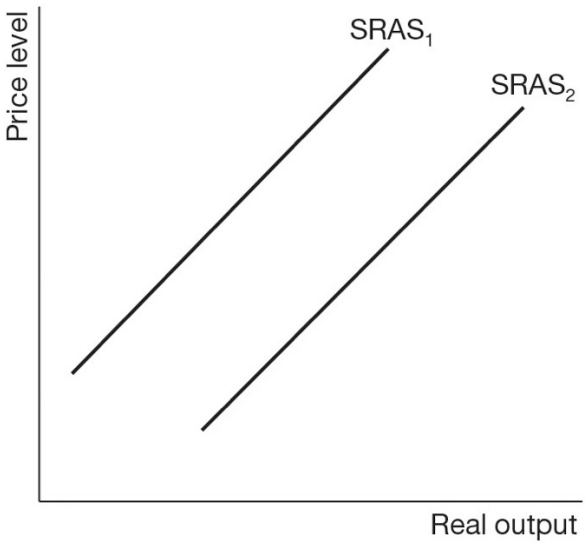

**(b)** An increase in demand and output of 7.3 per cent, in the short run, is likely to require existing workers to work overtime. Overtime is usually paid at a higher rate. Even though the basic rate of pay remains the same, earning costs will rise for firms. The increase in costs will cause some firms to put up their prices. Output increases from Y1 to Y2. The price level rises from P1 to P2.




**Activity 2**

**(a)** An increase in labour productivity will reduce unit costs. The SRAS curve will shift to the right.

**(b)** A fall in oil prices reduces energy costs for firms. The SRAS curve will shift to the right.




**Activity 3**

**(a)** Hungary's output gap (the difference between actual GDP from potential GDP as a percentage of potential GDP) is the smallest. Hungary's output gap is 0.426 per cent. Hungary has a positive output gap. It is operating above its full capacity; however, this positive output gap is small at 0.426 per cent of potential output.

**(b)** Economies operate to the left of their long-run aggregate supply curve when a negative output gap exists. This is because their actual GDP is below their potential GDP. In the table, the economies who experienced a negative output gap in 2016 were Greece, Italy, Portugal, Spain, the UK and the USA.

**(c)** Greece was experiencing the biggest negative output gap of −12.967 per cent. This means they were operating significantly below their potential GDP. Unemployment was likely to be high for Greece since production was low.

**(d)** Both Hungary and Japan have positive output gaps. Actual output is above potential output. This is possible, as factors of production can be used beyond their full capacity, but only in the short run. For example, workers may take on unsustainable levels of overtime.

## Activity 4

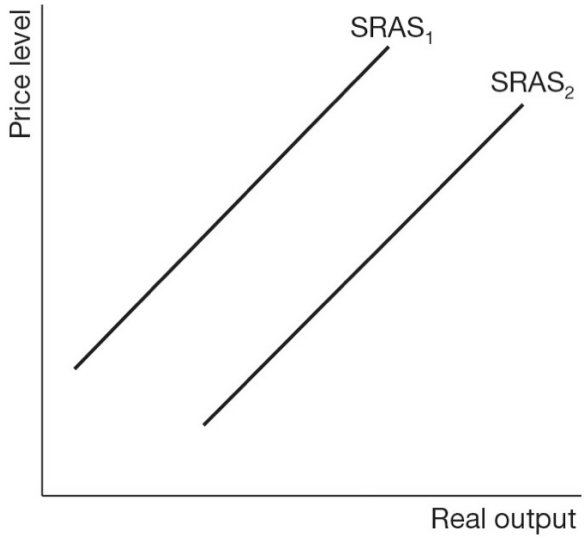
(a) If the labour market clears, then the wage rate will always be at the point where demand for labour equals the supply of labour. A fall in aggregate demand will cause the demand for labour to fall. This creates an excess supply of labour at the existing wage rate. This excess supply of labour should cause wages to fall. However, a minimum wage sets a floor on wages. In Australia, the weekly minimum wage is A$656.90. This has raised the wages of 1.86 million workers and is one of the highest minimum wages in the world. A living wage might be set as the legal minimum wage or it may be a 'voluntary' rate. Even a voluntary rate puts pressure on firms to pay this rate. This is partly to avoid adverse publicity.

(b) A living wage or minimum wage is more likely to lead to a Keynesian-shaped long-run aggregate supply curve. A living wage or minimum wage prevents wages from falling below the floor level. If this is set above the equilibrium wage, then the supply of labour will remain greater than the demand for labour. This is likely to be the case when the economy is in a recession and aggregate demand has fallen. If supply of labour is greater than demand for labour, then unemployment will persist. If wages are 'sticky downwards', then despite low aggregate demand and high unemployment, price levels will remain broadly constant. This helps to explain why a living wage or minimum wage may lead to a long-run aggregate supply curve which is not vertical. If aggregate demand were to rise, then output can increase without any rise in prices and costs, provided the economy is not close to full employment.

However, as the economy nears full employment, then wages and prices will start to rise. Once labour becomes scarce, which happens close to full employment, wages will rise. The living wage or minimum wage is likely to be below the new equilibrium wage. This means the labour market will now clear and at full employment the economy cannot produce any more whatever prices firms receive.

## Exam practice

**1.** A fall in the cost of importing oil will reduce energy costs for most firms. Most firms will benefit from a fall in transport costs. Some firms also use oil as a raw material in their production process, e.g. agricultural chemicals. So, the fall in import costs will reduce costs in general for firms. This will cause the SRAS curve to shift to the right. This is shown as follows.



**2.(a)** The percentage change in multifactor productivity for the USA between 2000–06 is:

$$(96.8 - 89.2)/ 89.2 \times 100 = 8.5$$

So, between 2000–06, multifactor productivity in the USA increased by 8.5 per cent.

The percentage change in multifactor productivity for the USA between 2010–16 is:

$$(101.8 - 100)/100 \times 100 = 1.8$$

(Here, it is just the difference between 101.8 and 100. This is because 2010 is the base year).

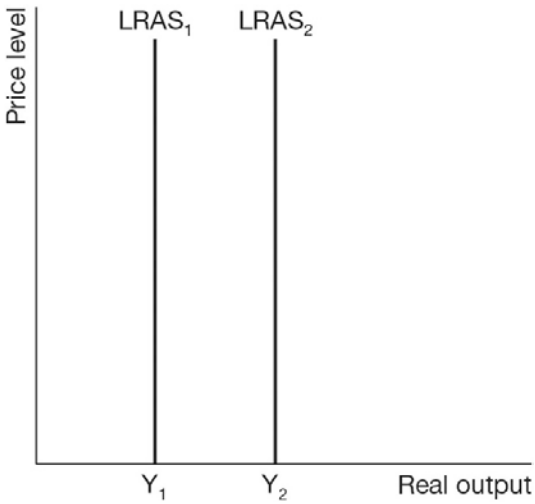
So, between 2010–16, multifactor productivity for the USA increased by 1.8 per cent.

**(b)** The long-run aggregate supply curve shows the productive potential of the economy. It is linked to the concept of the production possibility frontier. An increase in the quantity or quality of an economy's factors of production will shift the LRAS curve to the right. Immigration increases the growth of the labour force. If the immigrants are skilled, then the quality of the labour force will also increase. This will increase labour productivity in the economy. The extract states 'a 1 percentage point increase in the share of migrants, in the adult population of a developed country, can raise GDP per capita by 2 per cent, over the long term'. This is evidence that the LRAS is likely to shift to the right.

**(c)** The LRAS is affected by both the quantity of factors of production and their quality. Investment in capital goods is likely to increase the stock of capital goods in the economy, provided there is net investment. Investment in new technology should also increase the quality of capital goods.

For the USA, in 2000, investment grew by 6.3 per cent. However, in 2009, investment fell by 13.1 per cent. In 2016, investment did grow, but by only 0.6 per cent. This fall in investment is likely to explain some of the reason for the productivity weakness in the USA in recent years. In 2000, labour productivity growth, measured by the increase in GDP per hour worked, was approximately 2.7 per cent. However, by 2016 productivity growth was only 0.2 per cent. A fall in investment growth will slow down the growth in both capital productivity and labour productivity. If there is less investment in new technology, then workers will have less innovative technology to use, so labour productivity will not be as high as it could have been.

The fall in firms' appetite to invest will limit how much the LRAS is shifting to the right.

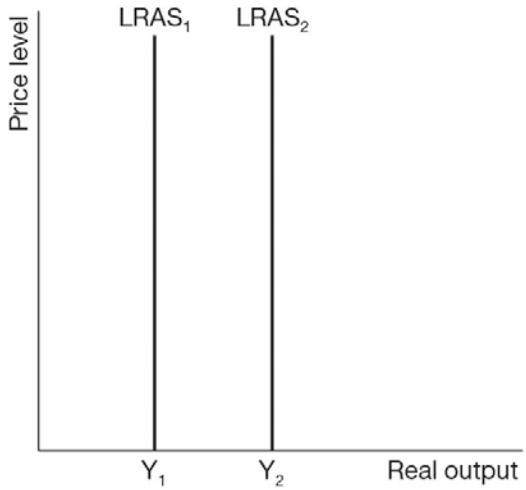


Since the global financial crisis, the slowdown in investment growth means the LRAS will be shifting to the right more slowly than before the crisis.

However, the link between investment growth and productivity growth may not be direct. Although investment in the economy fell by 13.1 per cent in 2009, Figure 11 shows a sharp rise in labour productivity between 2008 and 2010. Labour productivity rose to its 2000 level of nearly 3 per cent in this period. So, factors other than investment might be affecting productivity and therefore the position of the LRAS.

However, from 2010 onwards, labour productivity falls sharply. This suggests there is a strong link between investment and productivity, but maybe a time lag exists. The extract also states that the USA is experiencing a slowing down in the size of the workforce. This could have a more significant effect on the LRAS compared to the fall in investment growth.

**3.(a)** The LRAS will shift to the right if either there is a greater quantity of factors of production available or the quality of the factors of production in an economy increases.




The increasing use of technology in education and training should increase the quality of the labour force in emerging economies. The growth of digital companies in China, which offer courses over the Internet, is allowing skills to be acquired across China. In all regions, the quality of labour is increasing through the use of technology in education and training. This should therefore increase the LRAS. The higher the impact on labour productivity, the greater the shift of the LRAS to the right. The use of online courses in universities in Indonesia should also promote more access to education. This is because it lowers the cost of education, therefore it increases the potential number of students.

However, the overall impact on the LRAS will depend on the extent to which the quality of the labour force improves. In China, it may be limited if the majority of the workforce cannot afford the prices charged by the digital companies. In India, companies are still struggling to find graduates with the right skills. So, the use of technology to provide courses will only have a significant impact on the LRAS if they are targeted at promoting the skills that employers need and which will increase productivity. The courses need to fill the skills gap to be the most effective.

# 32 Circular flow of income

## Activity 1

A rise in government spending causes injections to be greater than withdrawals, so national income will increase.

A fall in taxation reduces withdrawals. Since the economy is initially in equilibrium, a fall in withdrawals means injections will be greater than withdrawals. Therefore, national income will rise.

A rise in savings increases withdrawals. Therefore, withdrawals will be greater than injections, causing national income to fall.

A rise in the value of the currency on foreign exchange markets (exchange rate) makes exports less price competitive and imports cheaper. Therefore, exports will fall, and imports will rise. This causes injections to fall and withdrawals to rise. National income will fall.

A fall in interest rates should reduce savings (there is less incentive to save) and increase investment (it is cheaper to borrow). A fall in savings reduces withdrawals. An increase in investment increases injections. Therefore, national income will rise.

## Exam practice

**1.** In the circular flow of income model, households supply factors of production in return for rent, wages, interest and profits. Households spend their money on goods and services supplied by firms. An injection into the circular flow of income is spending which does not come from households (consumption). These are investment (spending by firms on capital goods), government spending and exports (spending by foreigners on domestic goods and services). Withdrawals are savings by households, taxes paid to the government and imports (this is spending on foreign goods and services). The data shows exports of goods and services for China represented 19.6 per cent of GDP and imports represented 17.4 per cent of GDP. So, China's current account on the balance of payments has created a net injection into China's circular flow of income.

**2.(a)** An injection into the circular flow of income is spending which does not come from households (consumption). These are investment (spending by firms on capital goods), government spending and exports (spending by foreigners on goods and services). In 2017, South Korea announced a record US$380 billion government spending programme for 2018. Government spending is set to increase by 7 per cent. This will increase injections into South Korea's circular flow of income, so South Korea's national income (GDP) will increase.

**(b)** Exports are an injection into the circular flow of income. In South Korea, exports are forecast to fall by 4.7 per cent in 2016 compared to 2015. This will reduce injections into the circular flow of income. Assuming national income was originally in equilibrium, with injections equal to withdrawals, a fall in exports will cause withdrawals to be greater than injections. Therefore, national income in South Korea will fall.

# 33 Equilibrium levels of real national output

## Activity 1

**(a)** According to classical economists, the long-run aggregate supply curve is vertical. An increase in demand, therefore, will only lead to an increase in prices. Assuming that the economy is at full employment (i.e. unemployment is at its natural rate), a resolution of the strike in favour of the strikers will first increase short-run aggregate supply (SRAS), shifting the SRAS curve upwards, and second increase aggregate demand (AD), shifting the AD curve to the right.

The SRAS curve will shift upwards because it is drawn on the assumption that wage rates are constant, whereas in this case wage rates are increasing. The AD curve will shift to the right because the workers will now spend more. (We are assuming here that the government does not pay for the increasing wages by cutting expenditure elsewhere or by raising taxes.) The shifts of these two curves lead to a movement up the long-run aggregate supply curve. Prices would increase, but the level of output and employment in the economy would remain the same.

If the economy were at less than full employment, both the Keynesian and classical economists would agree that a rise in workers' pay, all other things being equal, would tend to increase both output and prices because the increase in aggregate demand would help move the economy nearer to its full employment level.

**(b)** If the action were unsuccessful then there would be no effect on either wage rates or aggregate demand. Hence, neither the AD curve nor the AS curve would shift. Prices and equilibrium output would therefore be unaffected.

## Activity 2

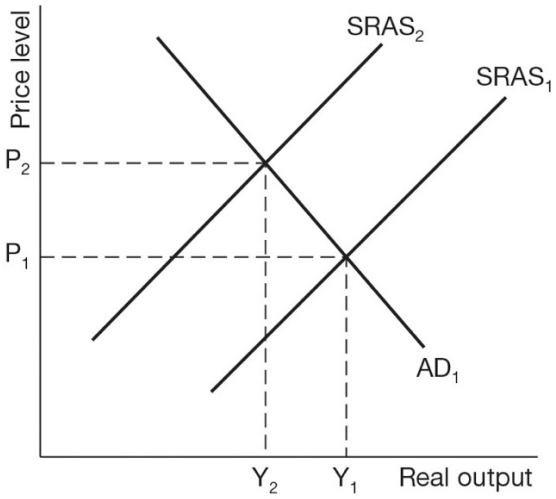



Figure 1

An increase in global commodity prices, such as wheat, metals and oil, causes an increase in costs for firms across many countries. This is called a supply-side shock if the increase in costs is fairly significant. This causes a shift in the SRAS curve to the left. The price level will rise from P1 to P2 and real GDP will fall from Y1 to Y2.

## Activity 3

During the global financial crisis of 2007–08, the USA, among many other economies, experienced a recession. Barack Obama launched a stimulus plan to inject spending into the circular flow of income. This injection was equivalent to 6 per cent of US GDP.

Keynesians believe, like classical economists, that if the economy is at full employment then an increase in aggregate demand will be purely inflationary (e.g. AD4 to AD5 will just cause the price level to rise from P3 to P4). However, if the economy is below full employment, then Keynesians believe an increase in aggregate demand will lead to a rise in real output without an increase in prices. In the diagram, an increase in aggregate demand from AD1 to AD2 causes real GDP to rise, from Y1 to Y2, **but** causes no change in the price level.

So, Keynesians would support Barack Obama's stimulus plan, since in the Keynesian model an increase in aggregate demand, assuming the economy is currently below full employment, can increase real GDP without causing inflation.

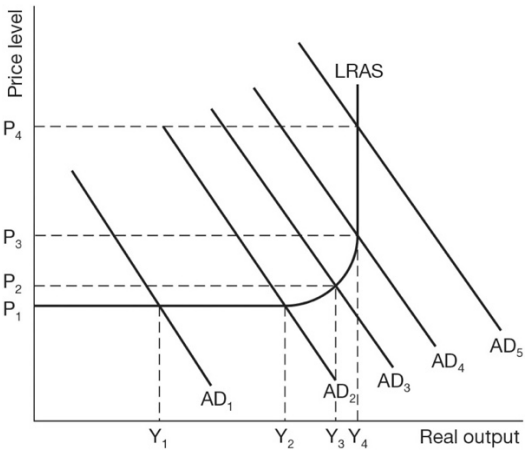



Figure 2

## Activity 4

**(a)(i)** A 10 per cent rise in earnings in the economy will lead to an increase in aggregate demand as workers spend their extra wages. In Figure 3, the aggregate demand curve will shift to the right from AD1 to AD2.

**(ii)** At the same time, wage rates have increased and therefore the short-run aggregate supply curve will also have risen from SRAS1 to SRAS2.

**(iii)** In the long term, the economy must return to a point on its long-run aggregate supply curve. There is likely to be continued wage inflation in the economy pushing the SRAS curve upwards towards a long-run equilibrium position of C. In the long run, prices will have risen but output will remain unchanged.

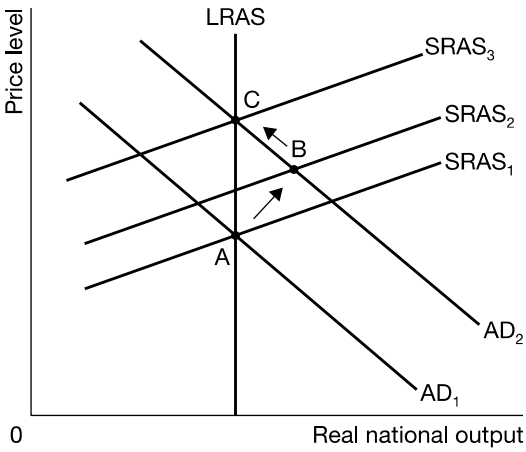



Figure 3

**(b)(i)** An increase in real spending by government on education and training, all other things being equal, will increase aggregate demand in the economy, shown by a shift to the right in the aggregate demand in Figure 3.

**(ii)** The short-run aggregate supply curve should remain unchanged initially since there are no short-term upward cost pressures implied by extra spending on education and training. In the long-term, however, the SRAS curve is likely to shift downwards because the productivity of labour will have increased, lowering the effective wage cost of producing a unit of output.

**(iii)** The increase in spending is likely to increase long-run aggregate supply because the amount of human capital available for production is likely to be higher. In Figure 4 this is shown by the shift to the right in the LRAS curve. In the long term, the economy, therefore, moves from A to B. Output will increase. The effect on the price level will depend on the extent of the shift in the AD curve compared to the LRAS curve.

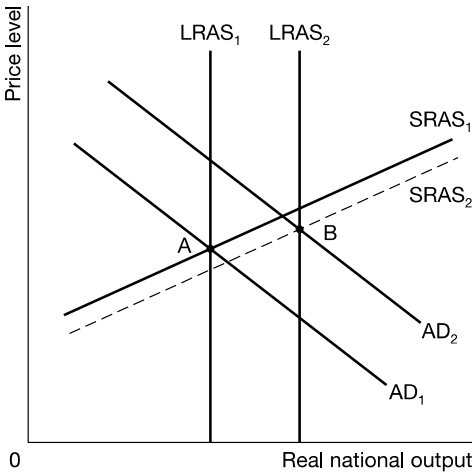



Figure 4

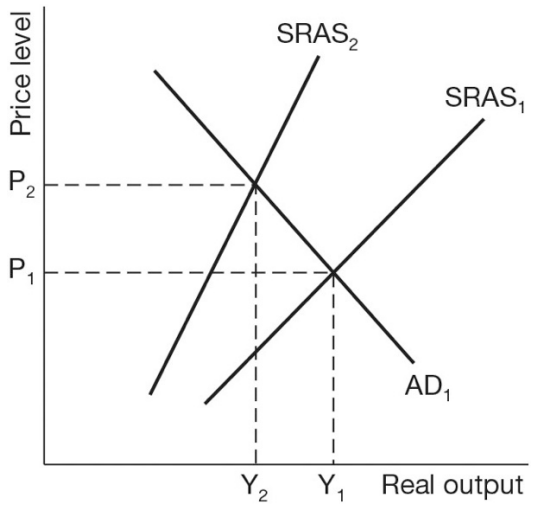
**(c)(i)** An increase in the average long-term real rate of interest from 3 to 5 per cent is likely to reduce aggregate demand because both consumption and investment will be affected negatively.

**(ii)** The short-run aggregate supply curve is likely to shift upwards because costs to industry of borrowing money will increase.

**(iii)** The rate at which long-run aggregate supply shifts to the right is likely to fall because less investment will reduce its growth rate. The overall impact on long-run output is likely to be a reduction in its growth rate. The effect on the price level will depend on the relationship between the shift to the right in the AD curve and the shift to the left of the LRAS curve.

## Exam practice

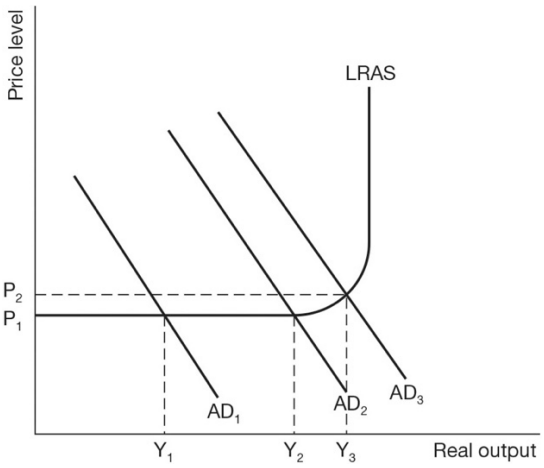
**1.**



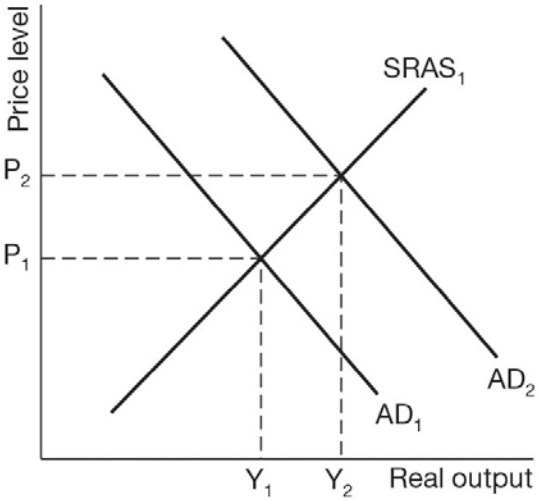

A sales tax is an indirect tax and an ad valorem tax. The increase in the sales tax, in Japan, from 5 per cent to 8 per cent will increase the costs for firms. Since this tax is an ad valorem tax, the SRAS would pivot and would shift to the left from SRAS 1 to SRAS 2. The price level rises from P1 to P2 and real GDP falls from Y1 to Y2.

**2.** Full employment is associated with the level of real GDP where the LRAS is vertical.

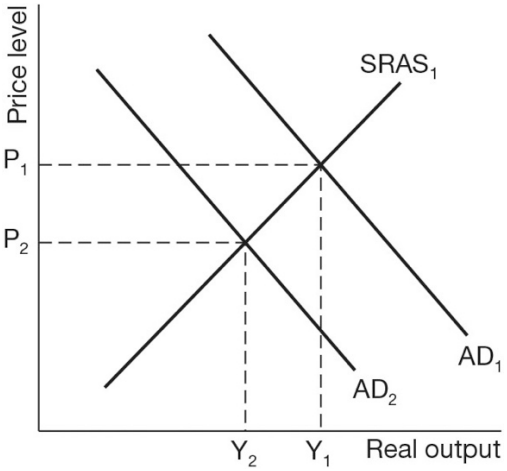
An increase in aggregate demand, from AD1 to AD2, would cause an increase in real GDP, from Y1 to Y2, without causing pricing pressures. This is because the economy is operating well below full employment. The price level remains at P1. If aggregate demand increases beyond AD2, then this will increase the price level. This happens as the economy approaches full employment. For example, an increase in aggregate demand from AD1 to AD3, causes real GDP to rise from Y1 to Y3. The price level also increases from P1 to P2.




**3.** An increase in South Korea's exports, investment and consumption in 2016–17 will increase South Korea's aggregate demand. The aggregate demand curve will shift to the right. In the short run, this will cause an increase in real GDP from Y1 to Y2, and an increase in the price level from P1 to P2.




**4.** In 2015, South Korea's economy was hit by two shocks. Firstly, the outbreak of Middle East Respiratory Syndrome caused consumption to fall in the second quarter. This was a demand-side shock. A fall in consumption, which is a component of aggregate demand, would cause the aggregate demand curve to shift to the left. This would cause real output to fall (Y1 to Y2) and put downward pressure on the price level from P1 to P2. However, the impact only seems to be in the second quarter. The impact is only, therefore, in the very short run.




The second demand-side shock in 2015, which reduced South Korea's exports, was caused by the slowdown in the economic growth of the Asian economies, particularly China. China's economic growth rate was only 6.9 per cent in 2015, compared to 10.6 per cent in 2010. A fall in economic growth for China and other Asian economies reduced export growth for South Korea. This is because incomes are rising at a slower rate in Asia, so demand for South Korea's exports from Asia will also slow down. Figure 16 shows the net trade balance surplus fell from approximately US$84,000 in 2014 to US$70,000 in 2015.

Figure 15 shows the export annual growth rate in 2015 was −0.13 per cent. Between 2011–14, export growth had always been positive, but on a downward trend. A negative export growth rate in 2015 means exports fell compared to 2014. The demand-side shock has reduced exports for South Korea.

Since exports are a component of aggregate demand, a fall in exports reduces aggregate demand. Real GDP in South Korea will fall from Y1 to Y2 and the price level will fall from P1 to P2. This demand-side shock is likely to be more significant than the effect of Middle East Syndrome. This is because China's economic growth seems to be on a downward trend. If China's economic growth rate continues to fall, the impact on South Korea's exports will be significant because exports of goods to China account for a large percentage of South Korea's GDP (10 per cent of its GDP in 2014). South Korea is also heavily reliant on exports as a component of aggregate demand. In 2012, exports as a percentage of GDP were 56.3 per cent.

# 34 The multiplier

## Activity 1

**(a)** 0.5

The marginal propensity to consume is the change in consumption divided by the change in income. So, the MPC is €100 million ÷ €200 million = 0.5

**(b)** 0.1

The marginal propensity to save is the change in saving divided by the change in income. So, the MPS is €200 million ÷ €2000 million = 0.1

**(c)** 0.33

The marginal propensity to tax is the change in tax divided by the change in income. So, the MPT is €50 million ÷ €150 million = 0.33

**(d)** 0.3

The marginal propensity to import is the change in imports divided by the change in income. So, the MPM is €300 million ÷ €1 000 million = 0.3

**(e)** 0.4

The marginal propensity to withdraw is the addition of the change in savings, taxes and imports divided by the change in income. So, the MPW is (€100 million + €300 million + €600 million) ÷ €2500 million = 0.4

## Activity 2

| Table 1 | | |
|---|---|---|
| | Multiplier | Change in income |
| (a) | 2 | +£2 billion |
| (b) | 1.25 | –£1.25 billion |
| (c) | 2.5 | +£1.25 billion |
| (d) | 4 | –£80 billion |
| (e) | 2 | –£14 billion |
| (f) | 1.43 | –£28.6 billion |
| (g) | 1.43 | +£14.3 billion |
| (h) | 2 | –£60 billion |

Table 1

Note: answers are rounded to two decimal places where appropriate.

**(a)(i)** 2 **(ii)** a rise of €2 billion.

The value of the multiplier is 1 ÷ (1 − MPC) = 1 ÷ (1 − 0.5) = 2. The change in income is the increase in investment x the multiplier, i.e. €1 billion x 2 = €2 billion.

**(b)(i)** 1.25 **(ii)** A fall of €12.5 billion.

The value of the multiplier is 1 ÷ MPW = 1 ÷ 0.8 = 1.25. The change in income is the decrease in government spending x the multiplier, i.e. −€10 billion × 1.25 = −€12.5 billion.

**(c)(i)** 2.5 **(ii)** A rise of €12.5 billion.

The value of the multiplier is 1 ÷ (1 − MPC) = 1 ÷ (1 − 0.6) = 1 ÷ 0.4 = 2.5. The change in income is the increase in exports × the multiplier, i.e. €5 billion × 2.5 = €12.5 billion.

**(d)(i)** 4 **(ii)** A fall of €80 billion.

The value of the multiplier is 1 ÷ MPW = 1 ÷ 0.25 = 4. The change in income is the decrease in investment × the multiplier, i.e. −€20 billion × 4 = −€80 billion.

**(e)(i)** 2 **(ii)** A fall of €14 billion.

The value of the multiplier is 1 ÷ (MPS + MPT + MPM) = 1 ÷ (0.1 + 0.2 + 0.2) = 1 ÷ 0.5 = 2. The change in income is the decrease in exports × the multiplier, i.e. −€7 billion × 2 = −€14 billion.

**(f)(i)** 1.43 **(ii)** A fall of €28.6 billion.

The value of the multiplier is 1 ÷ (MPS + MPT + MPM) = 1 ÷ (0.2 + 0.3 + 0.2) = 1 ÷ 0.7 = 1.43. The change in income is the decrease in government spending × the multiplier, i.e. −€20 billion × 1.43 = −€28.6 billion.

**(g)(i)** 1.43 **(ii)** A rise of €14.3 billion.

The value of the multiplier is 1 ÷ MPW = 1 ÷ 0.7 = 1.43. The change in income is the increase in government spending × the multiplier, i.e. €10 billion × 1.43 = €14.3 billion.

(Note that the information given about the MPS and MPT is irrelevant to answer this question.)

**(h)(i)** 2 **(ii)** A fall of €60 billion.

The value of the multiplier is 1 ÷ (1 − MPC) = 1 ÷ (1 − 0.5) = 2. The change in income is the fall in investment × the multiplier, i.e. −€30 billion × 2 = −€60 billion.

Note that the value of the multiplier can also be found using the marginal propensity to withdraw. If the MPS is 0.1, the MPM is 0.3 and the MPC is 0.5, then the MPT must be 0.1. Therefore, the MPW must be 0.5. The value of the multiplier is 1 ÷ MPW, or 1 ÷ 0.5.

## Activity 3

**(a)** A 4 per cent fall in real household consumption expenditure will have shifted the aggregate demand curve to the left, from AD1 to AD2 in Figure 1 and led to a fall in short-run equilibrium real output from 0A to 0B. If consumption fell as a proportion of income, then the marginal propensity to consume is likely to have fallen. This will lead to a fall in the value of the multiplier. If investment, government spending or exports then fell, the negative impact on aggregate demand due to the multiplier effect will be smaller.

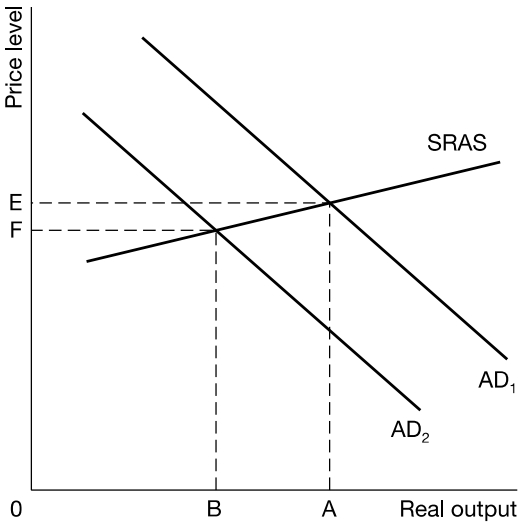



Figure 1

**(b)** All other things being equal, the large fall in interest rates should have led to an increase in both consumption and investment and a fall in saving from what they would otherwise have been. This will have shifted the aggregate demand curve to the right in Figure 2 and led to a rise in short-run equilibrium real output from 0A to 0B. If consumption rose as a proportion of income, then the marginal propensity to consume is likely to have risen. This will lead to a rise in the value of the multiplier. If investment increased at the same time, the positive impact on aggregate demand due to the multiplier effect will have been larger. This fall in interest rates in fact occurred at a time when the financial crisis pushed the economy into a deep recession. If interest rates had not fallen, the recession would almost certainly have been even deeper.

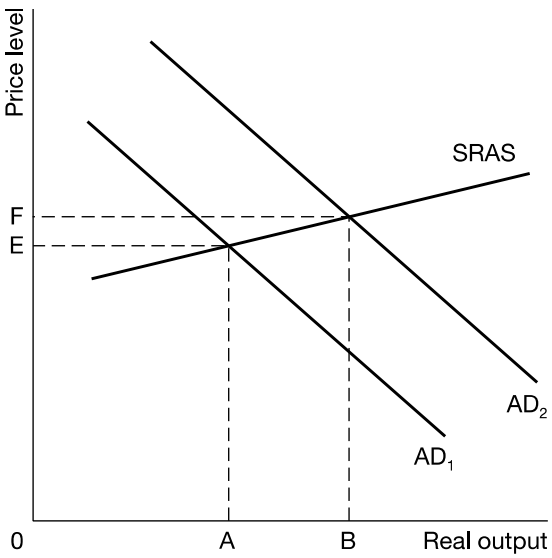



Figure 2

**(c)** A fall in income taxes will lower taxation. Withdrawals fall, so aggregate demand increases.

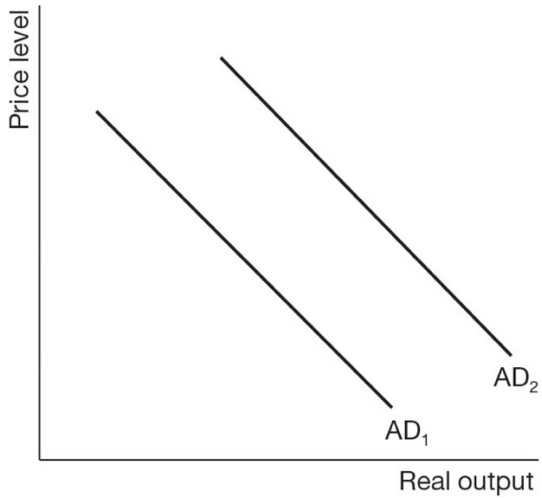



Figure 3

**(d)** A 40 per cent fall in London Stock Exchange prices will have led to a fall in aggregate demand, shown by the shift in the aggregate demand curve to the left, from AD1 to AD2 in Figure 1. This will have led to a fall in short-run equilibrium real output from 0A to 0B. This is because households will have experienced a fall in their wealth. As a result, they will have cut back on consumption. Saving is also likely to have increased as households attempted to rebuild their stock of wealth. If consumption fell as a proportion of income, then the marginal propensity to consume is likely to have fallen. This will lead to a fall in the value of the multiplier. If investment, government spending or exports then fell, the negative impact on aggregate demand due to the multiplier effect will be smaller.

**(e)** The rise in Russia's household savings ratio from 4 per cent in 2012 to 7 per cent in 2015 increases savings. This will reduce aggregate demand.

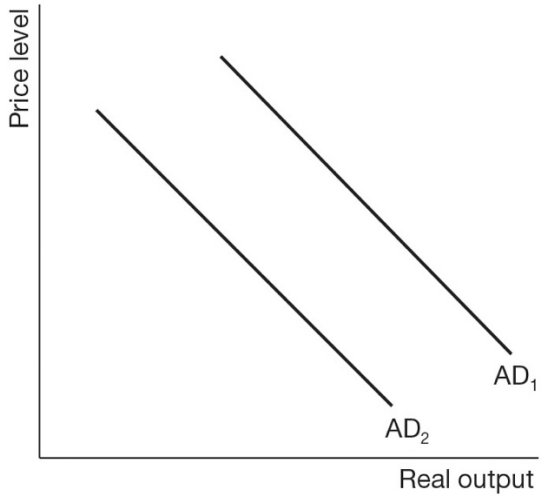



Figure 4

**(f)** An increase in spending by the Japanese government by 4.6 trillion yen increases injections into the circular flow of income. Aggregate demand increases.

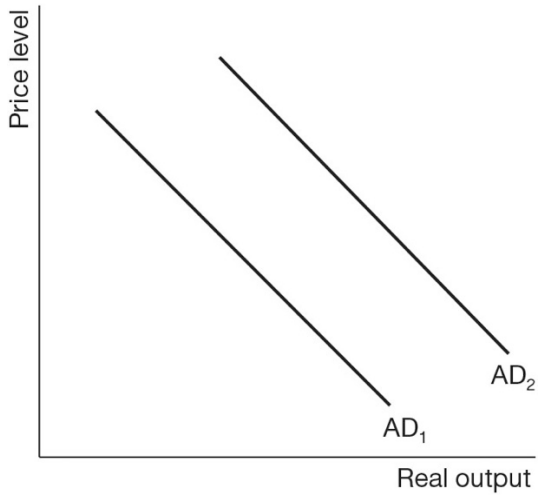



Figure 5

**(g)** The fall in the value of the pound makes UK goods more price competitive and imports less price competitive. Exports will rise and imports will fall. Aggregate demand will increase.

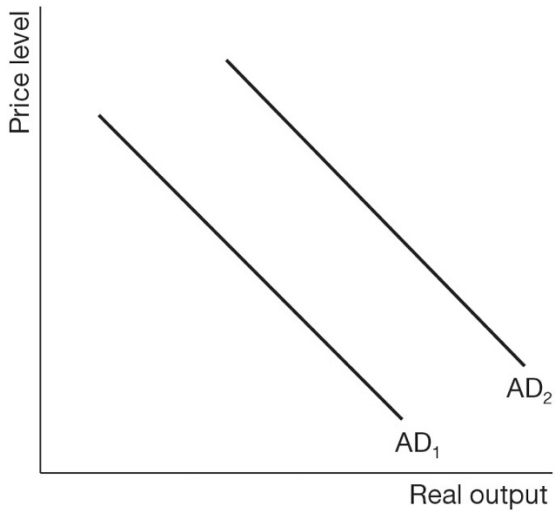



Figure 6

## Exam practice

**1.** The multiplier effect occurs when an initial change in aggregate demand has a much larger final impact on the level of national income. Government spending (public spending) increased by 7.3 per cent in Indonesia, in 2015. This extra spending by the government would create an immediate increase in jobs and demand for goods and services related to government projects. This would then set off the multiplier effect as the initial spending

creates new incomes which are then spent. The process continues, but at each stage the extra income created becomes smaller and smaller. This is because at each stage there will always be a proportion of new income which is not spent on domestic goods due to withdrawals from the circular flow of income.

**2.** In 2016, the Japanese government launched an increase in actual new government spending of 4.6 trillion yen. Since the spending includes 2.5 trillion yen on welfare payments, the multiplier effect is likely to be large. This is because a large proportion of extra income received by low-income families is likely to be spent rather than saved or taxed. So, the level of withdrawals, at each stage of the multiplier process, is likely to be small.

**3.(a)** The multiplier effect occurs when an initial change in aggregate demand has a much larger final impact on the level of national income. During the run up to Expo 2020, investment activity had picked up in the UAE in 2016. This created an injection into the circular flow of income. This would, via the multiplier effect, lead to a greater final increase in national income.

**(b)** An increase in investment activity in the UAE in the run up to Expo 2020 will create a multiplier effect. The multiplier effect occurs when an initial increase in aggregate demand has a much larger final increase on the level of national income. The extra spending on investment creates new incomes which are then spent. The process continues, but at each stage the extra income created becomes smaller and smaller. This is because, at each stage in the multiplier process, a proportion of extra income is withdrawn from the circular flow of income (via savings, taxation and imports). The value of the multiplier will determine by how much national income or GDP changes. For example, if the value of the multiplier is 3, then for every 1 dollar increase in investment, national income will rise by 3 dollars. The extract states that the multiplier effect will be weaker than previous investment cycles. This suggests that the value of the multiplier is lower than in recent years. It is likely that the low confidence level has caused a fall in the marginal propensity to consume. The marginal propensity to consume is the proportion of an increase in income which is spent.

In practice, it is hard to be predict the precise impact on national income, in the UAE, if investment rises. This is because there are many factors which can change the marginal propensity to consume, so the value of the multiplier will continually change over time e.g. as confidence levels in the economy change. It also takes time for the multiplier effect to have its full effect. So, it is difficult to know how long the time lag will last before the full impact is felt.

**4.** Answer (a) is correct.

The value of the multiplier = 1 ÷ (1 − MPC).

The value of the multiplier = 1 ÷ (1 − 0.6) = 1 ÷ 0.4 = 2.5.

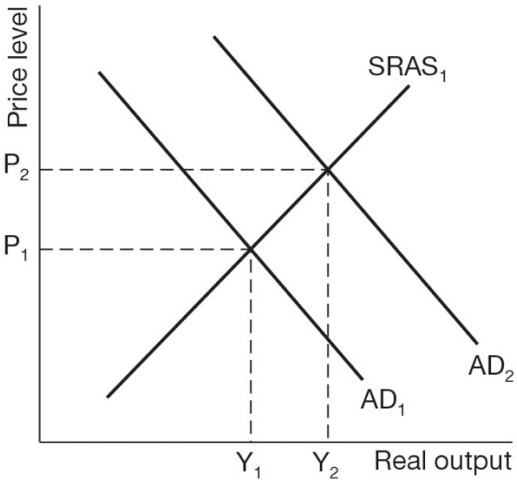
**5.** The value of the multiplier = 1 ÷ (MPS+MPT+MPM) = 1 ÷ (0.1 + 0.3 + 0.2) = 1 ÷ 0.6 = 1.67 (two decimal places). So, if injections rise by $100 million, the increase in national income will be 1.67 × $100 million = $167 million.

# 35 Causes of economic growth and output gaps

## Activity 1

**(a)** If national income is originally in equilibrium, a fall in taxes and a rise in government spending both acts as an injection into the circular flow of income. National income and therefore aggregate demand will increase. Aggregate demand = C + I + G + X − M. Government spending is a component of aggregate demand. A fall in taxes, depending on the tax chosen, will have a direct impact on increasing consumption and/or investment. The overall increase in national income, or aggregate demand, will be bigger than the original increase in the injection created due to the multiplier effect. The extent of national income increases will depend upon the value of the multiplier.

**(b)** An increase in government spending on infrastructure increases aggregate demand. An increase in aggregate demand causes actual growth. The aggregate demand curve will shift to the right. Actual growth is illustrated by the increase in real output from Y1 to Y2.




An increase in government spending on infrastructure (roads, telecommunications, water supply system, etc.) will also increase the LRAS. This is because spending on infrastructure increases efficiency and the productive potential of the economy. As a result, potential growth will increase.

## Activity 2

**(a)** The output gap is an economic measure of the difference between the actual output of an economy and its potential output. Economists also refer to potential output as trend output or the productive capacity of an economy. A negative output gap occurs when actual output is less than potential output. The economy is operating inside the PPC. Actual output is less than what the economy could produce at full capacity. A negative output gap means there is spare capacity, or slack, in the economy due to weak aggregate demand.

A positive output gap exists when the economy is operating beyond full capacity. This can only be achieved in the short run, since that level of production could not be sustained in the

long run. For example, workers may be taking on unsustainable extra hours at work or machinery will be over used.

**(b)** Both Greece and the USA have experienced positive and output gaps over the period shown. Greece experienced a positive output gap between 2005 and 2010. The USA also had a positive output gap between 2005 and 2008. However, Greece experienced the bigger positive output gap. At its peak in 2007, its output gap was approximately 8 per cent of potential output. In contrast, the USA's positive output gap peaked at about 3 per cent of its potential output in 2006. However, Greece's economy suffered more dramatically in the period after.

In the subsequent period, both Greece and the USA experienced a negative output gap. This coincided with the global financial crisis. However, Greece's economy was operating more significantly below its LRAS level of real output. In 2013, its real GDP was 15 per cent below its productive potential. However, although the USA also had a negative output gap, this peaked at 5 per cent of the USA's potential output in 2009.

So, this evidence shows that the performance of Greece's economy was worse than the USA's. A large negative output gap is likely to be associated with high unemployment for Greece. Even before 2010, there are also likely to have been problems for Greece having a much larger positive output gap than the USA. These usually include rising and high inflation.

## Activity 3

**(a)** Potential growth measures the increase in productive capacity of an economy over a year. Potential growth is shown by a shift of the LRAS to the right. Potential growth will occur if there is an increase in the quantity or quality of the inputs to the productive process. The passage suggests that Germany needs to increase its 'knowledge-based capital'. An increase in this type of investment is directly linked to a rise in productivity. This type of spending should promote innovation. Process innovation is likely to cause a rise in productivity. Product innovation also causes productivity to rise if new capital is introduced to produce the new products. A rise in productivity increases potential growth since the quality of inputs to the production process has increased.

Germany could also increase potential growth if the size of its labour force increases. Providing more incentives for both women and older people to work should increase the size of the labour force. Another way to achieve this would be to encourage more immigrants. If these immigrants are trained appropriately, then the potential growth rate will be higher.

## Activity 4

**(a)** The main factor that caused GDP to fall in 2009 was a loss of economic efficiency (or multifactor efficiency). This resulted in a near 5 per cent fall in GDP. Economic efficiency is defined here as the way in which factors of production are combined to produce goods and services. For example, the average workplace with the same amount of equipment and the same number of hours worked by the same workers produced less in 2009 than in 2008.

The other negative factor in 2009 was a fall in the number of hours worked by labour. In 2009 there was a recession in the economy. Firms will have reduced the amount of overtime

worked by their employees while unemployment is likely to have risen. The 6 per cent fall in GDP caused by a fall in labour inputs and a loss of efficiency was offset by a small growth in the capital stock and a better-educated workforce.

**(b)(i)** An individual worker produces a given amount of output. Therefore, if more workers are employed in an economy, all other things being equal, total output will rise. This assumes that each existing worker is of the same quality and works the same number of hours.

**(ii)** If the existing workforce becomes better educated, workers should, on average, be able to produce more. This is because their productivity rises.

**(c)** The data states that 'the worst-performing sector of the economy in terms of efficiency has been North Sea oil where aging oil fields have made it harder to extract oil despite greater capital investment, and the employment of more and better-qualified workers'. This implies that, despite greater investment, output has been falling. Without that investment, however, the fall in output might have been even higher.

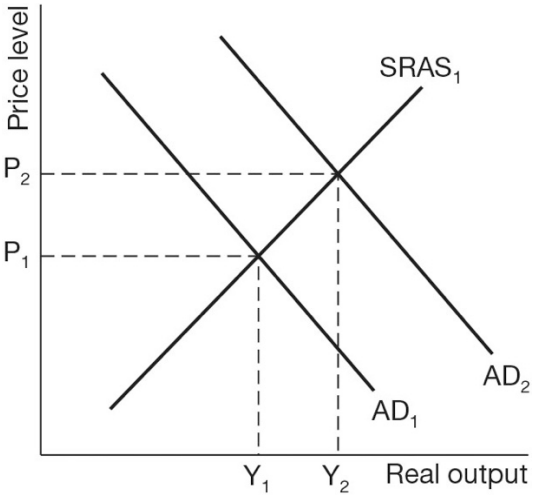
Yet more investment could have three possible outcomes. It could increase oil output, leading to higher economic growth; it could stabilise output, leading to no effect on growth; or it could be associated with a smaller fall in output than would have been the case had there been no extra investment. This would mean that the rate of economic growth for the UK would fall by less than it would otherwise have done with no investment.

This assumes, however, that investment in the North Sea has no opportunity cost. If investment in the North Sea comes at the expense of other investment in the UK economy, then the effect on economic growth will depend on which would have been the most productive. If £1 billion worth of investment in the North Sea were to contribute 0.1 per cent extra to GDP, but £1 billion worth of investment in pizza restaurants were to contribute 0.2 per cent extra to GDP, then investing in the North Sea would lead to lower GDP growth than would have been the case if the resources had been invested in pizza restaurants.

## Activity 5

**(a)** If exports increase relative to imports, then aggregate demand will increase. An increase in aggregate demand will cause real output to increase from Y1 to Y2. This illustrates actual growth. Actual growth is when the total of C + I + G + X − M has increased.

For Germany, the depreciation of the euro, combined with the recovery in the eurozone, would have boosted the demand for Germany's exports. In 2016, the current account surplus was a record 8.7 per cent of GDP for Germany. This suggests Germany enjoyed significant export-led growth that year.




**(b)** Although export-led growth causes actual growth, since aggregate demand increases, it may also cause potential growth. Becoming more export orientated may force German firms to remain more efficient to retain their competitive advantage. This may promote investment among German firms. An increase in investment, and therefore efficiency, will promote potential growth. It is also the case that export-led growth for Germany will cause real GDP to rise. A rise in output promotes investment generally via the accelerator effect. This explains why export-led growth can cause both actual and potential growth.

## Exam practice

**1.** (a) Incorrect – unemployment is likely to have fallen. A reduction in the negative output gap means the economy is moving closer to its long run potential output. Operating in a positive output gap means the economy is operating beyond full capacity. Workers will be working overtime, since there will be excess demand for workers.

(b) Incorrect – this looks like a possible answer, but a positive gap means the economy is operating beyond full employment. The economy is in short-run equilibrium where actual output is greater than potential output. Actual output is beyond the LRAS. The term 'full employment' is linked to the position of the LRAS.

(c) Incorrect – in 2018, the economy has no spare capacity. Spare capacity exists when the economy is in a negative output gap.

(d) Correct – a fall in the size of the negative output gap and an increase in the positive output gap suggests aggregate demand has risen. This will cause demand-pull inflation. Once the economy is operating in a positive output gap, workers will have more wage bargaining powers to increase their nominal wages because labour is scarce. This will cause cost-push inflation.

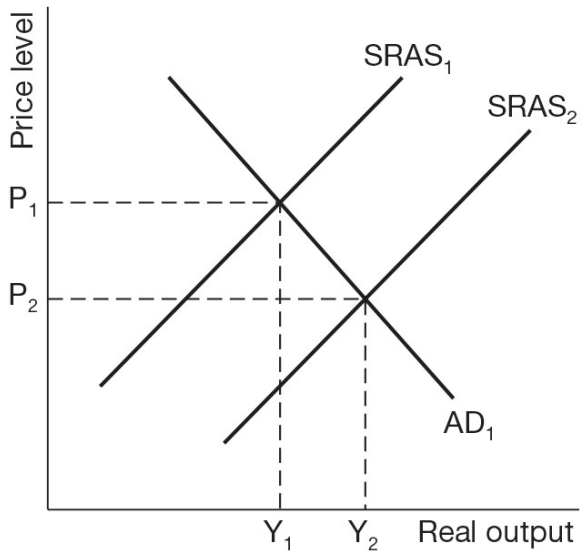
**2.** The LRAS curve is the level of output shown by the trend or long-term average rate of growth in an economy. The trend rate of growth in real GDP is assumed to show the level of output associated with the productive potential of the economy. The output gap is a measure of the difference between the actual output of an economy and its potential output.

A negative output gap occurs when actual output is less than potential output. The economy is operating inside the PPC. Actual output is less than what the economy could produce at full capacity. A negative output gap means there is spare capacity, or slack, in the economy due to weak aggregate demand. Jordan is therefore operating in a negative output gap, since its real GDP is below potential. This is associated with higher unemployment. Jordan's negative output gap is probably getting bigger, since unemployment is rising.

In contrast, a positive output gap exists when the economy is operating beyond full capacity. This can only be achieved in the short run, since that level of production could not be sustained in the long run.

**3.** FDI refers to flows of money between countries where one firm buys or sets up another firm in another country. In the aerospace sector, emerging economies have been the main recipients of inward foreign direct investment. This should increase potential growth for these economies. Potential growth refers to an increase in the productive capacity of an economy. This shifts the production possibility frontier outwards. A foreign company may introduce new technology or management practices to a workforce in an emerging economy. There is likely to be better training for local workers. New technology knowledge and other acquired skills will start to spill over into the economy, so more firms gain. Both capital and labour productivity are likely to rise. The LRAS is likely to shift to the right as productivity increases.

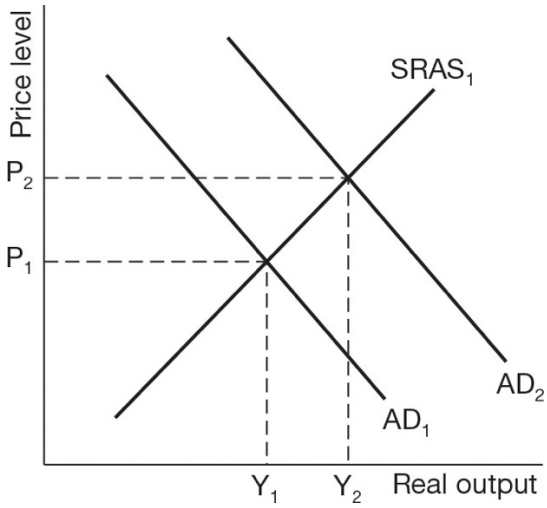
**4.** A fall in the price of oil reduces energy costs for firms. A fall in costs will increase the SRAS curve. The SRAS curve will shift to the right. The price level will fall from P1 to P2 and real output will increase from Y1 to Y2.




**5.(a)** Actual growth is an increase in real GDP. Actual growth increases when injections into the circular flow of income increase. Exports are an injection into the circular flow of income. Since 2009, Spain's export performance has improved. In 2009, exports accounted for 22.7 per cent of GDP. By 2016, this had risen to 33.1 per cent of GDP. This partly explains the improvement in Spain's current account on the balance of payments. Since 2007, the current account has moved from a deficit (approximately 10 per cent in 2007) to a surplus (approximately 2 per cent in 2017). This creates an injection into the circular flow of income and sets off a positive multiplier effect. Real GDP will increase because of export-led growth.

**(b)** Figure 12 in the Student Book shows an improvement on Spain's current account over the period 2007–17. The current account moves from a current account deficit of 10 per cent of GDP in 2007, to a surplus from the middle of 2012 onwards. This surplus peaks at just over 2 per cent of GDP in 2013 Q2. The improvement in the current account is explained by Spain's improved export performance. Exports have increased since Spain's goods and services are more price competitive, caused by a fall in unit costs due to a fall in wages and an increase in productivity.

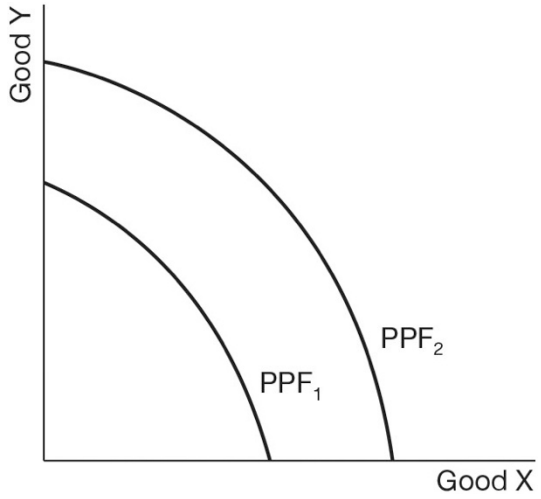
Over the same period, Spain's economic growth fell sharply from 2007. Between 2008–13, its economic growth was negative showing a sustained recession. However, from 2012, economic growth rates improved and from 2013 onwards economic growth rates were positive peaking at approximately 3 per cent in 2015 and 2016. The surplus in the current account from 2013 coincides with the period of positive economic growth in Spain. This suggests that export-led growth has been an important factor explaining Spain's economic recovery over this period. An increase in exports has increased aggregate demand. This explains the economic recovery in Spain from 2013 onwards. Real GDP has increased from Y1 to Y2.




However, despite the current account improving between 2007 and 2013, economic growth fell in this period and remained negative between 2008–13. This suggests that factors other than international trade were largely causing Spain's poor growth performance. There are also other components of aggregate demand, other than exports and imports which will be important factors which affect actual growth rates in Spain. In this period consumption and investment were very weak during the global financial crisis.

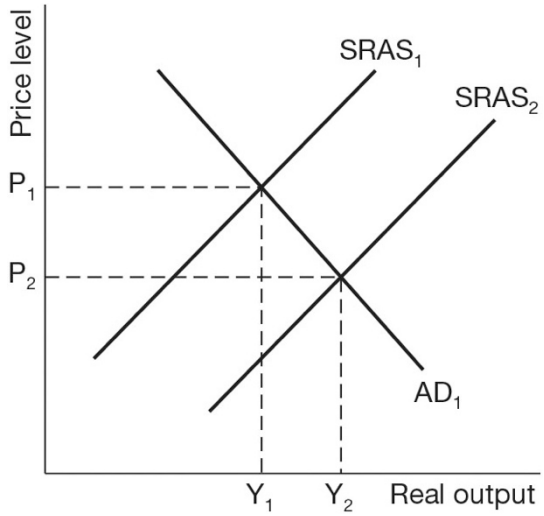
The extract suggests that, in the long run, Spain needs to increase productivity and spend more money on research and development, education and training. This would increase potential growth and help to reduce unit costs in the long run. So, the evidence suggests that international trade has helped Spain's economic recovery but would not be sufficient on its own to ensure positive economic growth rates. In the long run, Spain needs to focus on improving productivity to keep its unit costs down. This will help to keep its exports competitive as well as increasing the LRAS.

**(c)** Potential growth is an increase in the productive capacity in an economy. It is illustrated by a shift in the PPF and the LRAS curve to the right. Figure 13 shows that Spain has devoted less spending to R&D, as a percentage of GDP, compared to the OECD countries overall, since 2007. Since 2010, there also seems to be a downward trend in Spain's spending on R&D, as a proportion of GDP. In 2014 and 2015, Spain's spending, as a percentage of GDP, had reached a low of approximately half that of the OECD. The extract states that Spain's productivity per hour worked is low by international standards. This is likely to be partly caused by low levels of spending on R&D. Increasing R&D spending will increase innovation in the economy. This will lead to more efficient methods of production. The creation of new product ideas will also promote investment in new technologies. All this will increase productivity and therefore increase potential growth. As the extract states, 'Stronger productivity growth is needed. More money needs to be spent on R&D'.

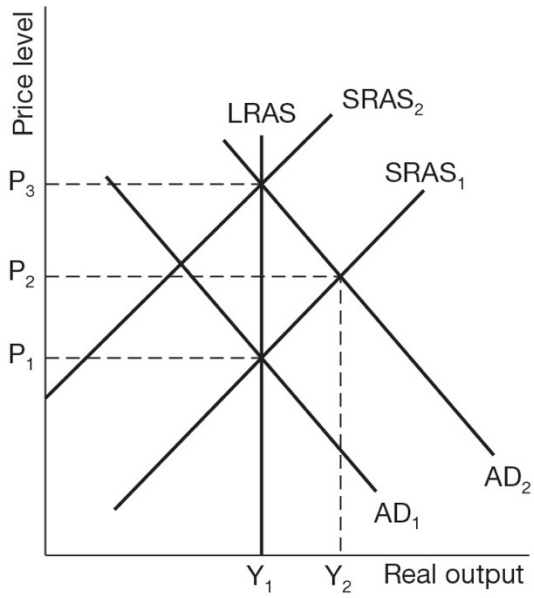



**6.** Productivity is output per unit of input employed. So, labour productivity is output per worker. Capital productivity is output per unit of capital employed. Increases in productivity will reduce unit costs. This increases SRAS, causing the SRAS to shift downwards.

Actual economic growth means real output increases. In the diagram, real output increases from Y1 to Y2. There is a movement along the AD curve as the price level in the economy falls (P1 to P2). The rise in real GDP is actual growth.




Actual growth can also be caused by an increase in aggregate demand. However, actual economic growth, with no corresponding potential growth, will push production closer to the production possibility frontier (PPF). Once the economy is operating close to its productive potential, an increase in aggregate demand can no longer cause any significant increases in real GDP. The economy might experience a positive output gap in the short run, but in the long run, real GDP is limited by the position of the LRAS. In the diagram below, actual growth with no corresponding potential growth is likely to just cause spiralling inflation if the increase in aggregate demand causes real GDP to rise above full employment (shown by Y1 which corresponds to the LRAS). The increase from P1 to P2 shows demand-pull inflation. However, in a positive output gap, with the economy working beyond full capacity, the scarcity of labour will push up wage costs. This causes cost-push inflation (P2 to P3). According to the classical view, real GDP will end up back at Y1, but the price level has risen overall from P1 to P3 after the rise in aggregate demand from AD1 to AD2.



So, once the economy is at Y1, a rise in real GDP can only be achieved if the PPF is shifting outwards (LRAS shifting to the right). One of the key drivers of potential growth is an increase in productivity. This explains the importance of productivity for sustained economic growth. This is because a rise in productivity, unlike many causes of actual growth, causes potential growth too. Causes of potential growth which focus on improving the quality of factors of production, such as improving the skills of workers or technological advances which improve the quality of capital goods, will increase productivity. Also, an increase in the efficiency with which existing factors of production are used, for example, due to process innovation, also increases productivity in the economy.

Although there are causes of potential growth other than increases in productivity, these can be limited for some economies. For example, causes of potential growth, such as increasing the size of the labour force or finding new natural resources, are often limited in scope, particularly for developed economies where birth rates are often lower and natural resources have already been fully exploited.

So, a rise in productivity is often vital for long-term growth for most economies. Since a rise in productivity also causes unit costs to fall in the short run, then both actual and potential growth can occur when productivity rises. This explains the importance of productivity, since other causes of actual growth may just cause spiralling inflation, if the economy ends up in a positive output gap, with real GDP limited to the position of the LRAS.

## 36 The benefits and costs of economic growth

### Activity 1

One obvious difference in the two kitchens is the amount of capital equipment in each. There is very little equipment in the early 20th-century kitchen, whereas today's kitchens have a wide range of labour-saving devices. There are other important differences. Less equipment, such as washing machines, no running water and no electricity meant that people at the turn of the century had to work much harder and longer to perform simple household tasks, such as cooking and washing, than people today. It was also less hygienic and less pleasant. There would be few people who would want to return to housing conditions commonly found in 1900 and therefore, in this respect, economic growth has been highly desirable.

### Activity 2

**(a)** Malaysia has enjoyed average growth rates of 6.4 per cent per year since 1970. Over this period, income inequality fell. The mean gross income ratio, between the top 20 per cent of households to the bottom 40 per cent, fell from 10 to 6. This suggests that the rise in national income has been shared out more equally than it would have been before 1970. However, some individuals have not benefitted much. These include the unemployed, single parents, the disabled and the elderly. For these groups, income support from the government is still very low. These groups will see the incomes of others rising faster than their own. The gains of growth also differ between regions. The income gap between the richer and poorer states has widened over the last five years. This suggests some regions have seen their mean incomes rising a lot faster than others. The access to basic infrastructure also does not seem to have extended to some rural areas. This will have a negative impact on living standards for these individuals.

**(b)** Public services include health, education, etc. Economic growth increases national income so should increase the tax revenue for governments. This extra revenue should enable the government to increase its spending on components such as health, education, etc. Extra spending on education should increase opportunities for all citizens. Spending on health also improves quality of life and life expectancy. Spending on infrastructure, such as road, water and energy supply, also improves living standards. This means economic growth should enable the government to improve living standards for all levels of society, 'The 11th Malaysia plan includes objectives to extend the provision of rural basic infrastructure, including road, water and energy supply'.

## Exam practice

**1.** Figure 5 in the Student Book shows how life expectancy has been on an upward trend in China between 1960 and 2010. In 1960, life expectancy was approximately 43 years old. By 2010, this had reached approximately 75 years. The population living on less than $1.90 a day (PPP) also decreased dramatically from 75.8 per cent in 1984 to just 1.9 per cent in 2013. For low- and middle-income countries, rapid economic growth is likely to explain these changes. A dramatic fall in the poverty headcount ratio, caused by rapid economic growth, means most individuals in China now have access to better quality food and have a minimum acceptable standard of living. As a result, life expectancy would be expected to improve. The rapid economic growth also means tax revenue can increase significantly for governments. As a result, the quality of, and access to, good quality healthcare should increase. This would cause life expectancy to rise too.

**2.** Compared to the world and OECD averages, economic growth in China has been high. For example, in 2007, economic growth in China peaked at 14 per cent. The world average in this year was just over 2 per cent. This rapid economic growth means the Chinese government would receive significantly more tax revenue. This can be used to improve the funding of essential public services, such as education. This should mean the quality of education at both primary, secondary and tertiary education should improve. More resources for schools leads to better school infrastructure, with proper science equipment, text books, school equipment, such as writing materials, and better trained teachers. The quality of education will improve. Better healthcare and infrastructure generally also means more children will attend school. The number who cannot attend for sickness reasons or length of time travelling to school should fall. Table 3 in the Student Book supports the link between economic growth and the increase in the quality of education. Over the period of high economic growth, literacy rates increased significantly from 66 per cent in 1982 to 96 per cent in 2015.

**3.** The likely impact of continued rapid economic growth on living standards for Chinese citizens will be both positive and negative. From Figure 3, between 1990 and 2016, real GDP per capita in China increased almost tenfold. Continued rapid economic growth would continue to increase real GDP per capita, and should close the gap between the living standards in China and more advanced economies, such as those in the OECD.

An increase in real GDP per capita tends to increase living standards in a variety of ways. Individuals can consume a higher volume of goods, so more wants are satisfied. With more tax revenue for governments, a rise in education and health standards also improves life satisfaction and health outcomes. The quality of housing also improves.

However, China has already made significant progress in some areas, so further improvement will be harder. For example, life expectancy (at 75 years in 2010) has already reached levels consistent with many advanced economies. Although life expectancy can increase further, sometimes further economic growth may have both conflicting positive and negative effects on life expectancy. Although more advanced medical care can be funded, a higher real income may be used on excessive eating out and buying more junk food. Many economies with economic growth are also experiencing issues such as a sharp rise in diabetes and other health problems.

The literacy rate in China has also already increased dramatically, from 66 per cent in 1982 to 96 per cent in 2015, so this is unlikely to improve much more. However, it is likely that further economic growth will continue to improve the quality of education, further promoting growth. Higher quality education will help Chinese citizens improve their life satisfaction and opportunities.

Although the gains of growth can be considerable, these gains may not benefit everyone. According to Extract A, income distribution has widened significantly over the last few decades. Unless the government takes action, via the tax and welfare system, further continued rapid economic growth may continue to only significantly benefit those who already enjoy relatively high incomes.

Figure 4 in the Student Book shows how $CO_2$ emissions per capita have more than doubled between 2000 and 2013. Extract B highlights the environmental cost of economic growth as countries rapidly industrialise and become more urban. China has experienced rising air pollution which negatively impacts health. This reduces living standards. However, continued rapid economic growth should promote environmental protection. This is because advanced technology often becomes cleaner and with sophisticated regulation and government support of environmental quality investment, economic growth no longer has to conflict with the environment. ‘Countries are definitely acting on this agenda. China has declared a war on pollution.’

Overall, continued rapid economic growth should improve living standards for Chinese citizens, provided the government acts to minimise the costs of growth. The benefits of growth need to benefit all citizens and the government needs to make sure the environment is protected as growth continues.

**4.** Economic growth measures how much real GDP has increased over the course of a year. Provided the economic growth rate is more than the increase in the size of the population, then real GDP per capita will rise. This means consumers will typically be able to enjoy a greater purchasing power. More goods and services consumed should result in higher living standards as more wants are satisfied. However, this does assume that the gains of economic growth benefit all, at least to some extent. If income distribution widens over this period, it may result in only a small minority benefiting from economic growth. If the Easterlin paradox is correct, economic growth may bring no benefits to consumers, in terms of happiness, once incomes have already reached high levels. It is also the case that the link between well-being and GDP may be weakly correlated. There are many factors which affect well-being. Although an increase in real GDP is likely to improve some indicators of well-being, other factors are also important e.g. sense of community, job security, etc.

Many firms also gain from economic growth. Actual growth means the total of C + I + G + X − M increases. Firms should experience a rise in profits; this gives funds available for

investment. However, some firms may go bust if they are not dynamic and new firms capture their markets.

Economic growth does give scope for the government to spend more because tax revenue will rise. This should impact positively for individuals. The quality of public services, such as education and health, should improve. Both health and education link positively to well-being. However, this does assume that governments act to promote well-being.

Economic growth can impact negatively on the environment. However, this is not a necessary cost, particularly if the economic growth has allowed economies to reach high income levels. Often advanced economies promote the protection of the environment and have the funds to promote new advanced technologies which minimise pollution in the production process or in consumer goods, such as cars.

Another benefit of economic growth is employment. Actual growth means more output is produced and so more labour will be demanded. Actual growth reduces the size of negative output gaps. However, economic growth might cause structural unemployment in the form of technological unemployment. However, this cost can be minimised if the government invests money in training schemes to help these individuals become occupationally mobile.

Overall, there are benefits of economic growth, but there are potential costs too. However, these costs can be minimised through government regulations and interventions. If the costs of growth are minimised, then the gains will be greater. However, there is also evidence to suggest that the link between GDP and well-being is only weakly correlated. This means economic growth should not necessarily be maximised. For example, if the government promotes cleaner technologies, then some investment resources are diverted into resources which do not necessarily promote economic growth the most. However, this sacrifice may lead to the highest benefits overall.

## 37 Macroeconomic objectives

### Activity 1

To increase economic growth – economic growth in Saudi Arabia had recently fallen to 1 per cent of GDP, following the fall in oil prices. To increase economic growth, the government hopes to make its economy less dependent on oil, with more private sector activity (45–60 per cent of GDP). This might also enable the government to reverse its spending cuts.

To reduce unemployment and increase employment – the government hopes that less dependency on oil and more private sector activity (expansion of manufacturing) should help to reduce unemployment from 11.6 per cent to 7 per cent.

The government hopes to balance the budget by reducing public sector salaries from SAR 480 billion to SAR 456 billion by 2020. The government also hopes to raise non-oil tax revenue to SAR 530 billion by 2020, from SAR 163.5 billion in 2015. Plans include introducing a sin tax on harmful products.

## Exam practice

**(a)** The macroeconomic objective 'balanced government budget' means government spending is equal to its revenue (government receipts). Government receipts are mainly tax revenues. Since 2005, Germany has got closest to balancing its government budget compared to France. In 2005, they were both running a budget deficit of approximately 3 per cent of GDP. Since 2005, the closest France got to balancing its budget was having a deficit of just over 2 per cent of GDP in 2006.

Between 2006 and 2009, France's budget deficit increased to 7 per cent of GDP. From 2009, its budget deficit fell, as a percentage of GDP, but was still approximately 3.5 per cent by 2016. In contrast, Germany's budget was balanced in 2007 and between 2012–16 it was always between 0 per cent and 1 per cent (so close to a balanced budget in this period). Between 2000 and 2005, France and Germany's government deficit, as a percentage of GDP, was similar, and ranged from 1 per cent government surplus to 4 per cent government deficit.

**(b)** Figure 4 in the Student Book shows that, except for 2008 and 2009, France's economic growth has not been particularly impressive between 2005 and 2016, compared to Germany, the UK and the OECD average. With the odd exception, France's economic growth has been weaker than these other countries. For example, in 2014, France's economic growth rate was approximately 1 per cent. In contrast, the UK's was approximately 3 per cent.

The highest economic growth rate France experienced in this period was in 2006, at approximately 2.5 per cent; in contrast, Germany's highest was 4 per cent in 2010, the UK's was 3 per cent in 2014 and the OECD average peaked at just over 3 per cent in 2006.

Table 1 also has data from 2017. France's unemployment rate in March 2017, at 10.1 per cent, is much higher than Germany's (3.9 per cent) or the UK's (4.5 per cent). This high unemployment rate suggests France is in a sizeable negative output gap with aggregate demand far too low. To reduce unemployment would require high actual growth.

This all suggests that the French government in 2017 would view economic growth as an important macroeconomic objective. The extract also states that government spending is too high in France; government spending is 56 per cent of GDP, much higher than Germany and the UK. Increasing economic growth would help to reduce this, if a large proportion of this is spending on welfare payments, due to France's high unemployment.

**(c)** Both France and Germany are likely to have macroeconomic objectives which include low unemployment, high economic growth, balance of payments equilibrium on the current account and a balanced government budget. Since both Germany and France are in the eurozone, the objective of low and stable inflation would be the responsibility of the European Central Bank and not the individual governments.

Except for 2008 and 2009, Germany's economic growth has been consistently higher than France over the period 2005–16. Over this period, Germany's economic growth rate peaked at 4 per cent in 2010. In contrast, the highest economic growth rate achieved for France was approximately 2.5 per cent in 2006. Between 2005–08, the unemployment rate was higher in Germany compared to France. However, they both experienced a downward trend.

From 2009 onwards, France's unemployment rate was on an upward trend and had reached a peak of just over 10 per cent by 2014. This unemployment rate continued to stay high and was at 10.1 per cent in March 2017. In contrast, Germany's unemployment rate was on a downward trend from 2009 onwards and by 2016 was down to 4 per cent. Both experienced

a slight rise in the unemployment rate during the global financial crisis. However, the data suggests that since the global financial crisis, the French government has not met its economic growth and low unemployment macroeconomic objectives as well as Germany.

As far as long-run growth is concerned, the labour productivity per hour in France was the same as Germany's in 2017. This suggests that economic growth may start to improve for France, provided aggregate demand is high enough.

The government budget deficit has been particularly high for France since 2006. In 2009, the government deficit reached 7 per cent of GDP. In contrast, Germany's highest deficit as a percentage of GDP was 4 per cent in 2010. Since 2013, Germany has had a small surplus. However, despite the relatively poor performance for France, its government budget deficit has fallen from 2009 onwards and France is close to getting its budget deficit within the EU's limit of 3 per cent of GDP from 2018 onwards.

As far as the current account on the balance of payments is concerned, Germany has a very large current account surplus which had reached 10 per cent of GDP in 2016. This seems too high. In contrast, the deficit on the current account for France was, at most, 2 per cent of GDP in this period. This suggest that the French government is closer to an objective of equilibrium on the current account. It depends on whether the German government also has this equilibrium objective. Distribution of income is similar between France and Germany. However, there is no data to comment on any environmental issues.

So, it seems that France, particularly since 2009, has met its possible macroeconomic objectives less successfully than Germany over this period. However, despite poor performance, there has been an improving trend leading up to 2016 for most indicators of economic performance. However, the one objective that stands out as not being met at all successfully is low unemployment.

## 38 Possible conflicts between macroeconomic objectives

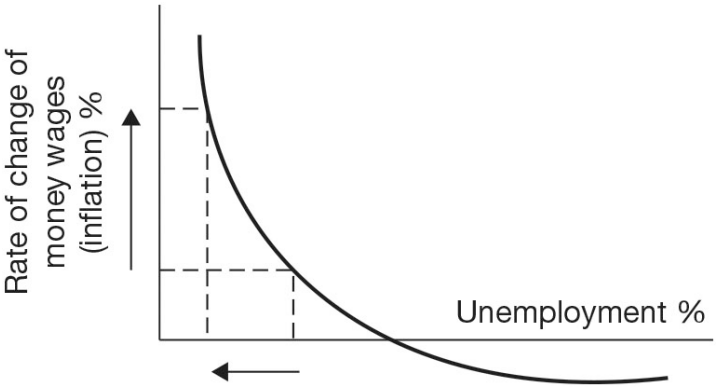
### Activity 1

**(a)** Labour shortages are likely to cause wage pressures to build because if firms are finding it difficult to recruit labour, then they may increase wages to provide an incentive for those seeking work. Labour shortages increase wage bargaining power for workers. In Hungary, the labour shortage has already led to a 15–25 per cent increase in the minimum wage. The government is trying to increase incentives to work, so helping to solve the labour shortage problem. The increase in the minimum wage will feed through into other wage increases, since workers will want to see the same differentials between their own wage level and others.

**(b)** Unemployment in the region had fallen significantly. For example, in Hungary unemployment had fallen from almost 12 per cent in 2013 to just 4.4 per cent in 2017. This fall in unemployment was causing labour shortages and rising wage pressures. The money wages paid to workers are the most important single cost of production in many economies. When money wages go up faster than the increase in output per worker (labour productivity) then costs increase for firms. The extract states that wage growth across Eastern European economies in 2017 was greater than productivity growth. So, costs will be rising for firms in this region. Firms will respond to a rise in costs by putting up their prices. This has been seen in the region. Inflation had risen across Hungary, the Czech Republic and Poland from

an average of −1 per cent in 2014, to 1.5 per cent in February 2017. This illustrates a trade-off between unemployment and inflation.

As unemployment falls in the region, inflation rises. This is illustrated in the short-run Phillips curve below.




## Activity 2

**(a)** According to the extract, an acceleration of economic growth has created an increase in pollution from heavy industry. This is partly because smaller factories, which often burn dirtier coal and are less efficient, start to increase production. In general, in developing economies, heavy industries will pollute more than in advanced economies because advanced technology and resources are still not available to promote environmental protection.

The government's main macroeconomic objective will also be on economic growth, rather than environmental protection, since economic growth will be crucial in lifting many of its citizens out of poverty. Economic growth, which leads to an increase in consumption of certain goods, for example, cars, also contributes to pollution, for example, exhaust fumes. Economic growth in developing countries is likely to cause the most pollution in those economies which have a higher proportion of GDP devoted to primary and secondary industries, rather than the tertiary sector.

**(b)** Although environmental regulations will reduce pollution, critics argue that these should not be excessive. This is because environmental regulations can conflict with economic growth. Stronger regulations are likely to increase costs for firms and therefore reduce profits. Output is likely to fall. Forms may also cut back on investment if there is less profit incentive. As a result, economic growth will be lower than it would have been without the environmental regulations. However, the environmental regulations may open up new markets. For example, the growth of wind farms and pollution-reducing equipment. Investment in these new markets will promote future economic growth.

## Exam practice

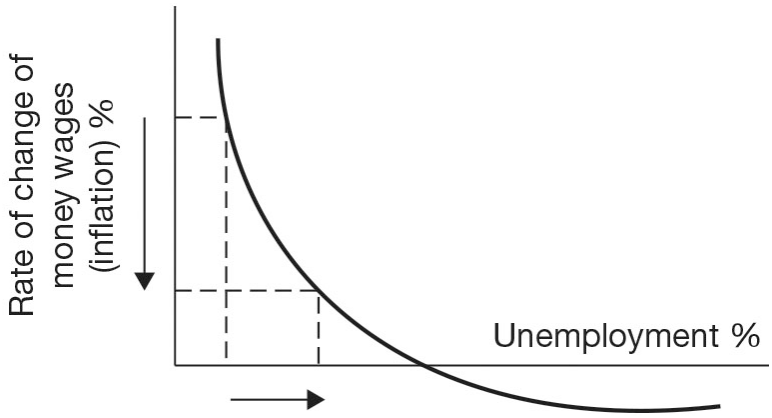
**1.** (b) is correct – inflation rising sharply reduces price competitiveness in international markets.

(a) incorrect – a rise in productivity reduces unit costs; this will increase price competitiveness if prices fall.

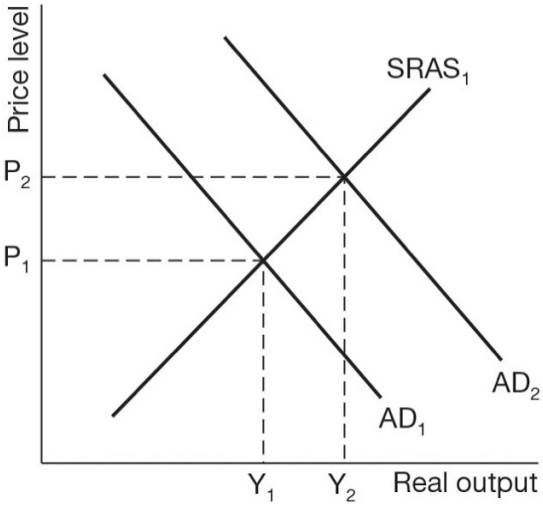
(c) incorrect – a fall in aggregate demand is likely to reduce spending on imports.

(d) incorrect – a fall in the value of the exchange rate will make goods and services more price competitive in international markets. Foreigners need to exchange less of their own currency to buy these goods and services.

**2.** The recession has led to a rise in unemployment and a fall in inflation (9 per cent to 4.5 per cent). This is shown on the Phillips curve below.

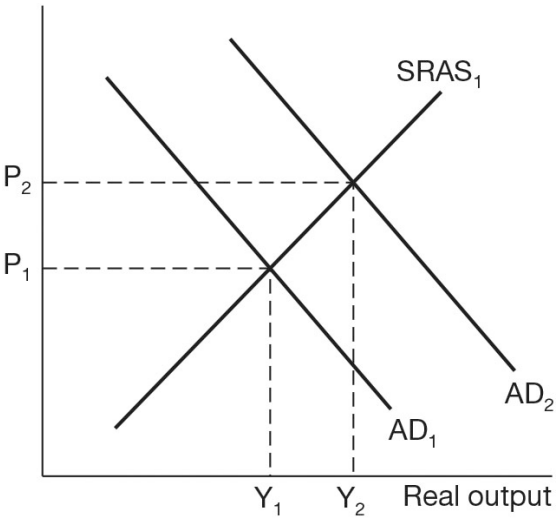



**3.** Aggregate demand had risen in the Czech Republic causing strong growth and low unemployment. Actual growth in August 2017 was 4.5 per cent over the year. This was caused by a rise in consumption (higher wages would cause this increase, along with the wealth effect on consumption caused by rising house prices) as well as export-led growth. A rise in aggregate demand will cause the AD curve to shift to the right. This causes real output to rise from Y1 to Y2 and cyclical (demand-deficient) unemployment to fall. However, the rise in aggregate demand, in the short run at least, will cause demand-pull inflation. This is shown by the price level rising from P1 to P2. This trade-off between inflation and unemployment could also be shown using the short-run Phillips curve.




However, if the economy is operating significantly under full employment, then Keynesians would argue that there would be no impact on inflation. Demand-pull inflation only starts to rise as the economy approaches full employment. So, it may depend how close the Czech Republic is to full employment. Classical economists believe in the long run that the economy will operate on the vertical LRAS. If unemployment has fallen because the Czech economy is operating, in the short run, in a positive output gap, then the SRAS will start to shift upwards. Unemployment starts to rise. The only long-run impact of the rise in AD will be on inflation.

**4.** A fall in taxes and a rise in government spending on infrastructure will increase the fiscal deficit by 3 per cent. This is a net injection into the circular flow of income, so national income in the USA will increase. Aggregate demand will rise. In the short run, the increase in aggregate demand will increase real GDP (Y1 to Y2) and the price level will rise (P1 to P2). Demand-pull inflation will be the result. An increase in real GDP will reduce cyclical (demand-deficient) unemployment. So, in the short run there will be a trade-off between unemployment and inflation.



However, if the government's main objective is to increase economic growth and inflation does not rise beyond the target level, then the impact will be positive for the economy. However, if the US economy is pushed into a positive output gap, then the inflationary pressures will be much higher; as extract B states, 'there are fears that if aggregate demand increases too much, it might trigger inflation'. Classical economists would anticipate this if the economy is operating beyond the LRAS in the short run. Keynesian economists would also anticipate rising inflation, when aggregate demand increases, if the economy is operating close to full employment.

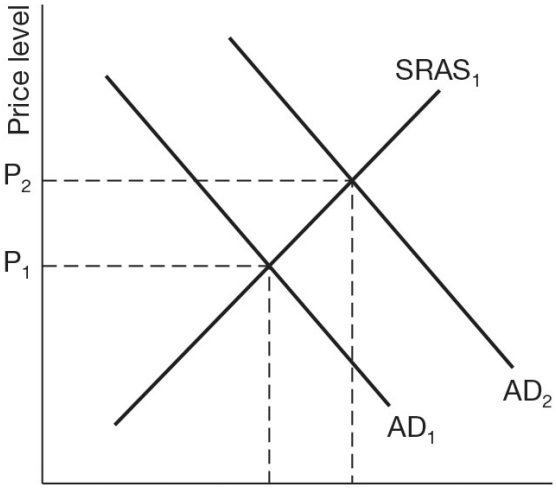
The income tax cuts will primarily benefit high-income earners. Those on top incomes (0.1 per cent of the population) will receive an average cut of more than 14 per cent of their after-tax income. Those whose income falls into the poorest 20 per cent will only see a 0.8 per cent tax cut. This suggests that the impact on aggregate demand will be limited. Those on high incomes have a very low marginal propensity to consume, so the value of the multiplier will be low. The impact on improving the economic growth rate may therefore be limited. This would also increase income inequalities in the USA.

Cutting corporate taxes and extra spending on infrastructure will increase potential growth, so will be good news for long-term economic growth and help to keep inflation down. Cutting corporate taxes should increase investment; the rate of return on investment projects will rise. Spending on infrastructure, such as roads, energy, telecommunications and education, increases productivity in the economy, so these policies cause potential growth; the LRAS shifts to the right.

To conclude, the extent to which real GDP increases in the short run will depend largely on the original injection and the value of the multiplier. This may be limited if the MPC is small. There may be some trade-off with inflation and rising income inequality. However, there may be more benefits in the long run if productivity rises. It will depend on what impact the rise in investment by firms and the rise in productivity, caused by the government's infrastructure projects, has on raising productivity.

**5.** Figure 4 in the Student Book shows a trade-off relationship between inflation and unemployment in Portugal over the period 2014 Q4 to 2017 Q3. The unemployment rate fell from approximately 13 per cent in 2014 Q4 to 8½ per cent in 2017 Q3. During the same period, inflation rose from −0.1 per cent in 2014 Q4 to 1.2 per cent in 2017 Q3. Inflation was on an upward trend over the period and unemployment was on a downward trend.

The extract explains that aggregate demand in Portugal had been rising. The economic recovery began in 2014 and more recently, the extract states there had been an 'increase in domestic demand, especially investment'. The trade-off between inflation and unemployment can be seen with an SR AD/AS diagram. An increase in aggregate demand, from AD1 to AD2, causes an increase in real GDP (Y1 to Y2) and therefore lower unemployment, but higher prices (P1 to P2).




**6.** Low- and middle-income economies have a clear incentive to maximise economic growth. If real GDP increases faster than the growth in the size of the population, then real GDP per capita will rise. A rise in real GDP per capita, for these economies, will be a main macroeconomic objective. Economic growth will lift many individuals out of poverty. A rise in consumption will clearly improve the well-being for individuals when basic needs are not being met, such as adequate food and shelter. For these economies, economic growth will be more important than environmental protection.

For many low- and middle-income economies, economic growth has been achieved by the growth of the primary and secondary sectors. In particular, the growth of heavy industry has caused heavy pollution. Methods of production often use old technology and burn dirtier coal; this means an increase in output will cause a high level of pollution. The high economic growth rates will also mean more use of cars, so this also contributes to more pollution.

In contrast, in many advanced economies, further economic growth often exists with an improvement in the environment. Economic actors, including both firms and governments, are likely to spend on technologies and projects to improve the environment. This is largely because resources are available in the economy to do this. For example, if national income is high, then a government will be able to raise more tax revenue, which, if it chooses, can be used for subsidies to provide incentives for firms to invest in more environmentally friendly methods of production. This explains why advanced economies are able to reduce the impact of growth on the environment. This supports the view that the conflict between economic growth and the protection of the environment exists more for countries on low or middle incomes. This conflict exists more for those developing countries which are achieving economic growth by increasing output in the primary and secondary sectors, rather than the tertiary sector, where there may be less pollution caused as output increases.

Critics of environmental regulation often argue that environmental protection will hamper economic growth. They argue that environmental protection conflicts with economic growth because stronger regulations are likely to increase costs for firms and therefore reduce profits. Output is likely to fall. Firms may also cut back on investment if there is less profit incentive. As a result, economic growth will be lower than it would have been without the environmental regulations. This argument would apply to all economies, both high-, middle- and low-income economies. This may explain why low- and middle-income economies might be reluctant to promote environmental regulations, because economic growth is vital for

lifting individuals out of poverty. So, when real GDP rises for developing countries, pollution tends to increase too.

However, for advanced economies they will balance environmental objectives with economic growth. Once GDP per capita is relatively high, and material living standards have reached a relatively high level, other aspects of well-being will be equally important. Most people in high-income economies would prefer low levels of air pollution and a clean environment, even if this means sacrificing some economic growth. So, for advanced economies, a rise in GDP is associated with a fall in pollution. However, the advanced economy may have sacrificed some growth to achieve this.

It is not necessarily the case that environmental protection conflicts with economic growth, however. Environmental regulations may open up new markets. For example, the growth of wind farms and pollution-reducing equipment. Investment in these new markets will promote future economic growth. So, whether environmental regulations conflict with economic growth will depend precisely on how the environmental regulations impact on firms' costs and whether the growth of new markets counteracts any negative effects. In the long run, if regulations promote investment in new technology, then the LRAS may shift to the right. This is more likely in a high-income economy, since there are more resources available to do this. This would increase potential growth and therefore the trend rate of growth in GDP. In this case, there is no conflict between economic growth and environmental protection.

To conclude, the view that the conflict between economic growth and the protection of the environment does seem to exist more for countries on low- and middle-income economies, such as China or India. However, it does not exist only for these economies and the trade-off may not exist under certain conditions.

## 39 Macroeconomic supply-side policies

### Activity 1

Deregulation of product markets is the process of removing government controls from the markets of goods and services. The objective is to promote competition in markets. In China, deregulation means some state-owned enterprises will be forced to compete with Chinese and foreign firms who will be allowed to enter certain markets. Deregulation, by promoting competition, should mean resources are used more efficiently. An increase in efficiency will be important for firms to survive in a competitive market. Profits can only be made in competitive markets if firms minimise costs while maintaining high-quality products. An increase in efficiency and a reduction in unit costs will promote supply-side growth. Potential growth should increase; the LRAS will shift to the right. A fall in unit costs will also increase the SRAS curve which causes actual growth.

### Activity 2

**(a)(i)** Firms will demand labour if there is a demand for their final product. The French government is announcing reforms designed to restore the competitiveness of France. This suggests the reforms will help to increase demand for France's exports. If aggregate demand rises, causing a rise in real GDP, then this will increase employment (cyclical unemployment falls). A fall in corporation tax from 33 per cent to 25 per cent should also encourage investment. This again is an injection into the circular flow of income. This

increases real GDP and would create jobs. Reducing taxes paid by employers on the wages of their staff also provides an incentive for firms to take on more labour (since it is has become cheaper).

**(a)(ii)** The long-run aggregate supply curve will shift to the right if there has been an increase in the productive potential of the economy. This may arise if either the quantity of an economy's factors of production increase or efficiency/productivity rises. Free market economists would argue that cutting the payroll burden for firms and removing 'red tape' for French firms will reduce costs and increase output. These policies will increase the incentives for enterprise, so increasing the productive potential. There is an assumption that the promotion of 'free markets' will increase efficiency in markets. A fall in taxation, such as the proposed fall in rate of corporate tax from 33 per cent to 25 per cent, should also increase investment. This could increase the stock of capital goods in the economy, and investment in new technology should also increase productivity.

Attracting more foreign direct investment in the banking sector would also increase potential growth. Therefore, the measures announced by the French government should increase the long-run aggregate supply curve.

## Activity 3

**(a)** Workers in Italy on permanent contracts 'had huge benefits, including rights that made it difficult for employers to make them redundant'. Firms over time need to hire and fire workers depending on their commercial situation. If it is very difficult to make a worker redundant, it imposes costs on firms. They are forced to keep on more workers than they would otherwise choose in the short term. They also face the situation where, having made a worker redundant, under the Italian unemployment insurance system the worker remains 'technically employed at their old company with no hours and a fraction of their wages'. Italian firms, not surprisingly, have therefore decided in the main to employ new workers on temporary contracts.

**(b)** The system of permanent employment contracts effectively raised the cost of employing labour to Italian employers. When they wanted to reduce the number of workers they employed, they found it difficult to achieve this within a reasonable time period. On average, Italian employers were therefore employing too many workers at any one time. They responded to this by reducing the number of workers they employed or taking on workers on temporary contracts. Figure 3 in the Student Book shows that by 2014, the unemployment rate in Italy had climbed to over 12 per cent. By introducing a new type of employment contract, the Italian government was hoping to persuade Italian employers to take on more workers, thus reducing unemployment.

Moreover, the reforms instituted 'tight links between unemployment benefits, job training and job searches'. In an economy where unemployment is relatively high and employers are reluctant to take on new workers, it is important that those who lose their jobs regain employment as soon as possible. This means they need the right skills for the jobs on offer. It also means that they need to be actively seeking work rather than accepting that they will become long-term unemployed. Measures which encourage training and job search are therefore likely to reduce unemployment.

## Activity 4

**(a)** Malaysia, despite having a well-maintained motorway network, still suffers a rural urban divide on infrastructure. However, the work on the East Coast Rail Line will help to fill some of the infrastructure gap. The ECRL will reduce transport costs between the west and east coast; this should increase production. Production should also increase because production disruptions, perhaps due to raw materials deliveries being late, are minimised if there are improved transport links. Efficiency in the economy will rise. Labour immobility should also fall, which increases aggregate supply. Improving transport links should shift the LRAS to the right.

**(b)** Infrastructure spending on the new East Coast Rail Line (MYR 55 billion) is an injection into the circular flow of income. Jobs in construction will be created, as well as jobs which arise due to the multiplier process. Many firms will see a rise in demand for their products or services, either directly or indirectly (the firms in towns along the route are likely to benefit), as the original increase in injections into the economy then creates additional extra income. This increase in aggregate demand will be particularly felt on towns along the route line. The new train line may also encourage more entrepreneurs in the tourism sector. An increase in foreign tourism will again inject money into Malaysia. So, infrastructure spending will increase aggregate demand and therefore actual growth.

**(c)** A government may be limited on how much it can spend on infrastructure if it wants to balance its government budget. Unless the government is able to increase taxation, or is willing to run a budget deficit, then its existing tax revenue will constrain how much it can spend. The government will face opportunity cost issues: does it spend more on infrastructure by sacrificing other components of government spending, such as health spending?

## Activity 5

**(a)** In a recession, the demand for labour falls. With more workers out of work, there is downward pressure on wages. The OECD argues in the data that too great a fall in wages can be ‘counterproductive’. This is partly because falls in wages lead to lower spending power for households. They buy fewer goods and services, prolonging the recession or making the recovery period longer. Equally, falls in wages lead to lower costs for firms. Competing against other firms, they then cut the prices of their products.

If the price level of the whole economy falls, there will be a period of deflation. Consumers may react to deflation by deferring their spending, particularly on consumer durables. This can then lead to further falls in aggregate demand and GDP. Investment will also be hit if firms believe that the recession will last a longer period of time. With falls in consumption and investment or, at best, weak growth in C and I, then economic growth will be negatively affected.

**(b)** A higher minimum wage will increase the disposable income of households. This will lead to an increase in consumer spending and therefore an increase in aggregate demand. It will lead to an increase in costs for firms but, in a deep and prolonged recession, they will find it difficult to raise product prices. Hence, the increase in aggregate demand is likely to be greater than the increase in short-run aggregate supply. Real output will then rise, with little, if any, increase in prices.

A rise in real output will increase household and business confidence and this should lead to a further rise in consumption spending and an increase in investment by firms. Hence, there will be a further rise in aggregate demand and in the rate of economic growth. Unemployment will fall. The macroeconomic performance of the economy in terms of higher economic growth, lower unemployment and little, if any, inflation will therefore improve.

## Exam practice

**1.** (b) Correct – a fall in corporation tax means more funds are available for investment. The rate of return on investment projects increases, providing the incentive to invest.

(a) Incorrect – real GDP will increase, not decrease. The LRAS shifts to the right.

(c) Incorrect – a fall in taxation is a fall in withdrawals. Investment rises, which is also an increase in injections.

(d) Incorrect – real GDP will increase.

**2.** Deregulation of labour markets means removing any regulations which makes labour less flexible. The French government has announced labour market reforms which will reduce trade union power in France. This means individual employers will be able to agree specific working arrangements with their unions or employees. This increases an employer's flexibility and should make it easier to increase working hours of employees, if needed, and cheaper to dismiss employees. Free market economists believe the increase in labour market flexibility increases efficiency.

**3.** Infrastructure spending on the road network in Argentina, of $33 billion, will increase aggregate demand as well as increasing the LRAS (it is viewed as a supply-side policy for this reason). An injection into the circular flow of income, due to infrastructure spending by the private and public sector, will set off the multiplier process and therefore increase aggregate demand. This will increase real GDP. Real GDP will also increase because of the impact it has on shifting the LRAS to the right. Infrastructure on a new road network will increase the efficiency of transporting goods and help to push down unit costs for firms. Potential growth will increase as well as actual growth, caused by a shift in the SRAS to the right.

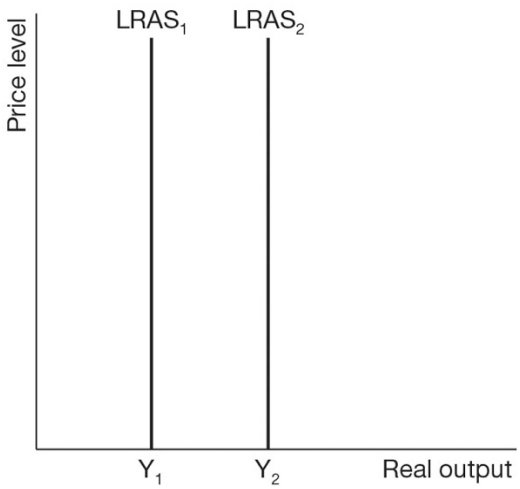
**4.(a)** Interventionist supply-side policies are policies designed to correct market failure. The government will intervene in free markets to change the outcome from that which would otherwise have occurred. By correcting market failure, the intervention will increase productivity, competition or incentives which increases the LRAS. In this case, the Mexican government is intervening by providing finance for business start-ups. It is also promoting new technology investment which will promote innovation and increase productivity. Providing incentives for entrepreneurs and increasing productivity with advanced technology will cause the LRAS to shift to the right. The government is actively intervening in the economy to promote supply-side growth.

**(b)** Five OECD countries cut corporate tax rates. This is a tax on company profits. A fall in corporate tax rates will increase the rate of return on investment. This will increase investment. Firms will also have more sources of finance available for investment if availability of credit is scarce. An increase in net investment will shift the LRAS to the right as the stock of capital increases. The LRAS will also increase because investment in new technology is likely to raise productivity.

A fall in tax on labour income is likely to increase incentives to work, again shifting the LRAS to the right.

However, the extent of the shift might be limited. A fall in corporate tax rates might have limited impact on increasing investment if business confidence is very low. The extent of the shift will also depend on how much the tax rates fall. If the government receives less tax revenue as a result, the overall effect on the LRAS will depend on whether the government has to cut back on other types of spending which affect supply-side growth. For example, if education budgets are cut then this might negatively impact on the LRAS, so the overall impact would be hard to predict.

**5.** Supply-side policies have the objective of increasing the productive potential of the economy.




The production possibility curve will shift outwards and there will be a rightward shift in the LRAS. Supply-side policies focus on increasing efficiency and productivity in the economy and increasing the quantity of resources (e.g. the size of the labour force, the stock of capital goods).

There can be a disagreement between economists on the best way to achieve this increase in productive potential.

Free market supply-side policies are designed to remove barriers to the efficient working of free markets. It is assumed that these barriers limit output by reducing efficiency and reducing incentives. Free market policies typically include deregulation of product and labour markets, privatisation, reduction in taxes, changing the levels of welfare payments and cutting the costs of bureaucracy for firms.

Free market supply-side policies often focus on increasing competition in markets, since competition incentivises firms to use resources efficiently. For example, deregulation in product markets removes government restrictions and controls on markets for goods and services. The government might restrict how many taxi firms can operate in a local area, for instance. Removing these restrictions allows more firms to enter the market.

An increase in competition is also achieved through privatisation. This is the sale of government-owned assets and organisations to the private sector. It is argued that the profit motive which exists in the private sector, combined with having to survive in competitive

markets, increases efficiency. Cutting taxes, such as corporate tax rates, increases the rates of return on investment. Investment should rise, which often causes productivity to rise too.

Reducing taxes on firms should increase incentives for entrepreneurs. Reducing income tax rates and reducing welfare payments also gives individuals more incentive to work. So, labour participation rates should rise as incentives to work increase.

However, economists disagree about whether free market supply-side policies or interventionist policies are most effective. The debate about market-based policies versus interventionist policies is part of a wider disagreement about the role of the state. Free market economists tend to argue that the state should be as small as possible. They often highlight the problem of government failure, when governments intervene too much. They believe that free markets tend to lead to the most efficient outcomes.

In contrast, interventionist policies are designed to correct market failure. Economists who support interventionist approaches argue that market failure is common. They believe that free markets, left to themselves, will create an inefficient allocation of resources leading to lower economic growth. For example, free markets may under-provide education and so the government must step in and deliver this service. Another example is that firms may be short-termist, only interested in maximising short-run profits and failing to invest for the future. The government might step in to encourage firms to invest. Examples of interventionist policies include the government investing in education, training and skills, the government creating incentives for firms to invest, the government increasing infrastructure investment or the government encouraging the setting up of new businesses, etc.

Despite economists sometimes having a basic difference of opinion on the role of the state, in practice, a supply-side policy will be viewed as effective if it helps to address the problem in the economy which is constraining potential growth. For example, increasing incentives to work may not be effective in increasing labour supply if the main reason these individuals are not working is due to a lack of the skills needed in the workplace. In this case, investment in education and skills will be the most effective policy to increase potential growth.

Similarly, firms might spend too little on investment. Is the problem that they are taxed too highly on their profits? If so, reducing corporate tax rates would help to address this. In this case, this free market supply-side policy would be effective. Or is it that they are subject to intense pressure from shareholders to deliver short-run profits at the expense of long-run growth? If so, providing tax relief for investment spending might help to address this problem. In this case, an interventionist policy might be the most effective.

So, to conclude, the most effective supply-side policies to increase potential growth will depend on the supply-side constraints which exist in an economy at that time. Although some economists do believe that free market supply-side policies are generally more effective, they are assuming that free markets function efficiently (so there is little market failure) and that government intervention is likely to cause significant government failure. Proponents of interventionist policies do not hold these views. In practice, it may depend on individual markets. For example, most economists believe the state should provide education, because the free market would significantly under-provide this.

# 40 Macroeconomic demand-side policies

## Activity 1

**(a)** If the Czech central bank has raised interest rates, then this suggests that they want to reduce aggregate demand. It is therefore likely that aggregate demand is viewed as too high. The passage supports this because unemployment is currently at historically low levels, inflationary pressures had been building (demand-pull inflation caused by rising aggregate demand) and economic growth had been rising. The passage also states that the output gap was closing. A rise in aggregate demand would reduce a negative output gap.

**(b)** A rise in interest rates will reduce aggregate demand. A rise in interest rates increases the incentive to save and increases the cost of borrowing. Consumption will fall. A rise in the cost of borrowing reduces investment. A rise in interest rates will also push up the value of the Czech currency on foreign exchange markets; this reduces exports and increases imports. So, overall aggregate demand will fall. A fall in aggregate demand will reduce demand-pull inflation. If unemployment starts to rise, then cost-push inflation may also fall as wage bargaining pressures ease.

## Activity 2

**(a)** Quantitative easing is a monetary policy instrument where the central bank buys financial assets in exchange for money in order to increase borrowing and lending in the economy. Quantitative easing by the Bank of England involved the bank buying financial assets such as government and corporate bonds from the financial markets. This increased the amount of liquid money in financial markets which was then lent out. Some of the increased lending was to households to buy goods and services and to firms to buy investment goods. This increase in consumption and investment increased aggregate demand and so increased UK gross domestic product.

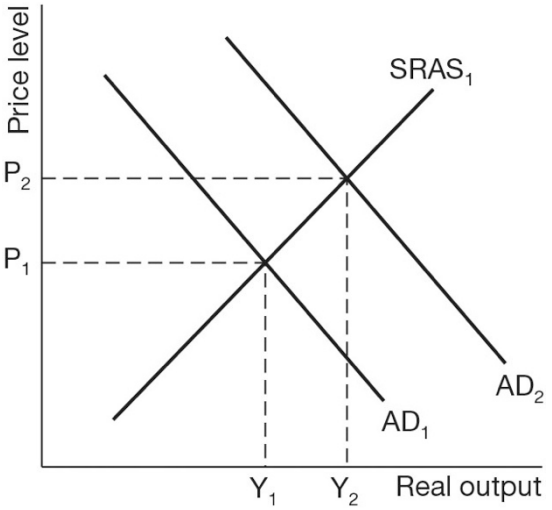
**(b)** Deflation is a fall in the price level. This may either be caused by a lack of aggregate demand in the economy or by cost-push factors such as a fall in import prices. Quantitative easing is designed to boost aggregate demand by increasing lending to the private sector. This raises consumption and investment leading to a rise in aggregate demand. The rise in aggregate demand then leads to inflationary pressures in the economy. If the quantitative easing is large enough and deflation is relatively low, it could push the eurozone from experiencing deflation to a low level of inflation.

## Activity 3

**(a)** Quantitative easing is when a central bank buys financial assets (bonds issued by the government or firms) from commercial banks in exchange for money. The objective of quantitative easing is to promote lending and reduce long-term borrowing costs in order to increase aggregate demand.

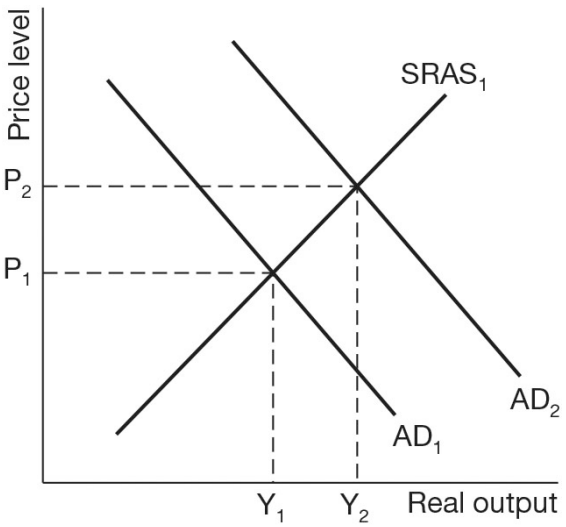
**(b)** The purchase of financial assets by the central bank in Japan (at a pace of JPY 80 trillion a year) will increase aggregate demand. This will help to achieve the central bank's inflation target of 2 per cent. At the moment, the bank's inflation forecast is 1.1 per cent. Quantitative easing, by boosting aggregate demand, will help to increase demand-pull inflationary pressures. If aggregate demand rises enough, then this will push inflation up to the target

level of 2 per cent. The diagram shows that an increase in aggregate demand, in the short run, causes the price level to rise from P1 to P2. It would be hoped that quantitative easing would cause the price level to rise sufficiently, so the inflation target is met.




### Activity 4

**(a)** President Donald Trump had pledged to increase government spending and reduce taxes. The increase in government spending, mostly on infrastructure, was expected to increase national income by 0.25–0.5 per cent in the second half of 2017. The tax cuts were also expected to further increase national income by 1 per cent in 2018. The effect of a reflationary fiscal policy is to increase aggregate demand since a net injection into the circular flow of income is created. The overall impact on aggregate demand will depend on the value of the multiplier. Real GDP in the short run will rise from Y1 to Y2, if aggregate demand increases from AD1 to AD2 (see diagram below).




**(b)** ‘Room for fiscal expansion’ in the UK, Germany, France, Belgium and Russia suggests that the OECD thinks these governments could increase government spending and/or

reduce taxation without causing the budget deficit to rise too much. In contrast, China, Hungary and Israel should move to a tighter budgetary stance which suggests government spending is too high in relation to the tax revenue received in these economies. This can cause problems.

### Activity 5

**(a)** One argument put forward by Dario Perkins is that it would 'raise inflationary expectations'. In 2015, the eurozone was experiencing approximately zero inflation, with the threat that it would slip into deflation. If deflation occurred, households and firms might put off some of their spending in the hope that they could buy goods and services at a later point in time, at a lower price. Raising inflationary expectations would prevent this deferral of spending from taking place.

Note that Dario Perkins also said that it 'would reduce the value of the euro against other currencies'. A fall in the value of the currency would lead to exports from the eurozone being cheaper and so exports would rise, raising economic growth. It would also make imports less competitive, helping aggregate demand. Another argument that might be used is that quantitative easing would increase the amount of borrowing by households and firms in the eurozone to finance increased consumption and investment.

An argument that supports the opposite view is that quantitative easing will have little or no effect on borrowing to finance higher consumption or investment in the eurozone. The extra money created might simply be absorbed by the financial sector or it might be used to buy assets rather than goods. It might, for example, be used to finance purchases of shares or houses. The price of shares and houses then increases without any consequent increase in either consumption or investment expenditure.

**(b)** Increasing public sector investment will raise government spending. This, in turn, will lead to a rise in aggregate demand and hence increase economic growth. The money to pay for this increase in investment would be raised by borrowing (i.e. it is deficit-financed) and hence the government budget would go further into deficit or its surplus would be reduced. So long as this borrowing does not crowd out private sector borrowing, which would have been spent on goods and services, then there will be a positive effect on aggregate demand and GDP.

For example, if the private sector uses the money borrowed to buy assets such as shares or houses rather than spending it on goods and services, then a deficit-financed investment programme will have a positive effect on economic growth. If, on the other hand, government borrowing crowds out consumption and investment expenditure in the private sector, then the impact on aggregate demand will be zero. The government spends more but it comes at the expense of lower spending by the private sector.

In 2015, the eurozone was experiencing a negative output gap, operating below its long-run potential output. Economists favouring deficit-financed investment could then have argued that increased government spending on investment goods would not be crowded out by falling private sector spending. Instead, it would crowd-in private sector spending through the multiplier effect.

## Exam practice

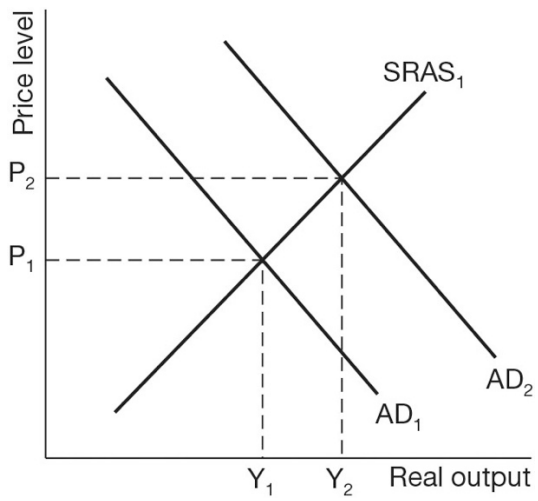
**1.** (b) Correct – a fall in the required reserve ratio injects money in the banking sector, so bank lending should rise. A rise in aggregate demand increases real GDP and the price level in the short run.

(a) Incorrect – real GDP increases, it does not fall.

(c) Incorrect – money supply would increase if bank lending increases.

(d) Incorrect – aggregate demand rises if the required reserve ratio falls.

**2.** A reduction in interest rates should increase consumption and investment because the cost of borrowing will fall. A fall in interest rates will also cause depreciation, boosting exports and reducing imports. Aggregate demand will rise when interest rates fall. Real GDP increases from Y1 to Y2 and the price level also increases (P1 to P2).



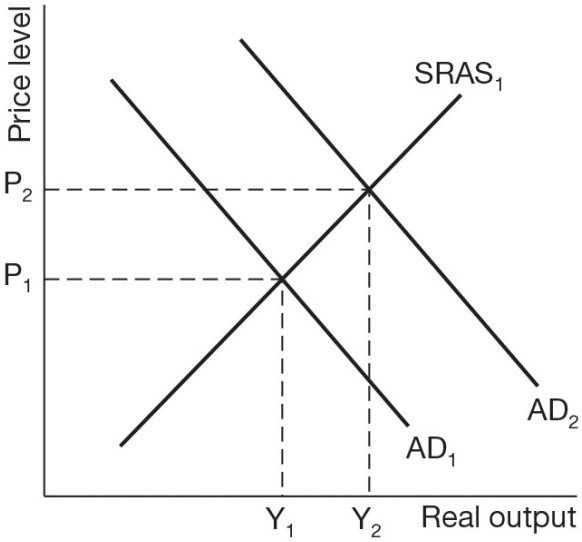

**3.** Quantitative easing is when a central bank buys financial assets (bonds issued by the government or firms) from commercial banks in exchange for money. The objective of quantitative easing is to promote lending and reduce long-term borrowing costs. Scaling back or phasing out its €60 billion a month bond buying programme will slow down the increase in aggregate demand. This is likely to reduce demand-pull inflation, so the price level will rise more slowly.

**4.(a)** Inflation is a general and sustained rise in prices over time. The central bank in Brazil has forecast inflation to be 4.1 per cent by the end of 2017. This means they expect price rises in general to be 4.1 per cent over the course of 2017.

**(b)** A fall in the central bank's benchmark interest rate means interest rates in Brazil, set by commercial banks to individuals and firms, should decrease. Brazil's largest commercial bank said it would pass on the rate cut in full to customers with personal loans and overdrafts or small business borrowing. This should increase consumption and investment, since the cost of borrowing will fall. A fall in interest rates also reduces the value of the

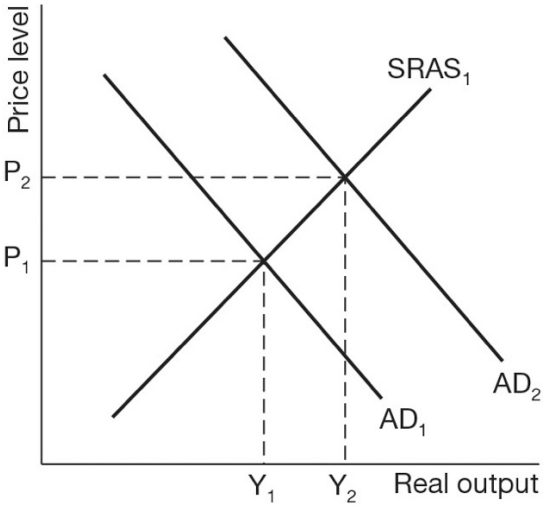
Brazilian currency on foreign exchange markets. So, this depreciation should boost exports and reduce imports. Therefore, aggregate demand (C + I + G + X − M) will rise.

The increase in aggregate demand will help pull Brazil out of recession. A rise in aggregate demand should cause real GDP to rise, at least in the short run (the SRAS is upward sloping). Real GDP will rise from Y1 to Y2.




A possible disadvantage may be demand-pull inflation (P1 to P2), although this is not likely to be significant since the inflation rate seems close to target. The impact on real GDP may be limited if the value of the multiplier is low. The impact may also be limited if business and consumer confidence remain low. In this case, even if it is cheaper to borrow money, individuals and firms may choose not to.

**(c)** An expansionary fiscal policy is when the government is deliberately using an increase in government spending and/or a fall in taxation to create a net injection into the circular flow of income. The objective is to increase aggregate demand (AD1 to AD2). This will increase real GDP from Y1 to Y2 but is also likely to cause some demand-pull inflation (P1 to P2). The extent to which aggregate demand increases overall will depend on how much the original injection increases as well as the value of the multiplier. The rise in the price level may also impact on the current account balance on the balance of payments. A rise in the price level may reduce the economy's price competitiveness with overseas firms.

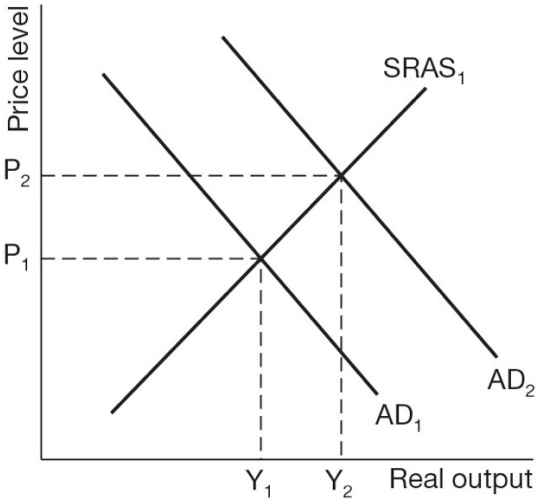



However, if the economy is operating well below the real GDP associated with the position of the LRAS, according to Keynesian economists, the increase in the price level will be insignificant. Demand-pull inflationary pressures only start to rise significantly as the economy approaches full employment. Instead, a rise in aggregate demand will be particularly beneficial since expansionary fiscal policy will cause real GDP to rise without any conflict with other macroeconomic objectives. So, for Keynesian economists, if the economy is currently operating in a large negative output gap, expansionary fiscal policy will be particularly beneficial.

Figures 3 and 4 in the Student Book show how fiscal policy differed between the USA, Germany and the UK during and after the global financial crisis. The USA ran a persistently higher budget deficit compared to the UK and Germany. The UK also ran a higher budget deficit compared to Germany. For example, in mid-2009, the USA's budget deficit was nearly 13 per cent, the UK's just over 10 per cent and Germany's approximately 3 per cent. It is therefore interesting to see if the USA's growth in real GDP has been higher than the UK's and whether the UK's real GDP growth has, in turn, been higher than Germany's.

This is the case for the USA. By 2014, the USA's real GDP was 10 per cent higher than its 2008 level. This compares to the UK and Germany, in 2014, ending up with real GDP only approximately 3 per cent higher than their 2008 levels. In fact, Germany performed better than the UK during this period. So, the data might suggest that expansionary fiscal policy can be effective in helping to reflate an economy, but it will depend on variety of factors. For example, it may depend on how close the economy is to full employment, the precise value of the multiplier in an economy and the impact it has on the size of the budget deficit. In the long run, expansionary fiscal policy may not be beneficial if the government's budget deficit is running too high. The German finance minister, in 2014, believed supply-side policies would only be effective for long-term growth and wanted to run a balanced government budget, rather than a budget deficit.

**6.** A recession is defined as two consecutive quarters of negative actual economic growth – real GDP is falling. A government may use demand-side policies to increase actual growth. A policy which increases aggregate demand (for example, from AD1 to AD2), will increase real GDP from Y1 to Y2, at least in the short run while the economy is operating along SRAS1.




As a response to the global financial crisis, interest rates, particularly in the USA and UK, were cut by central banks to historically low levels. The objective was to increase aggregate demand. A cut in interest rates by the central banks should increase consumption and investment, provided these low interest rates are passed on by commercial banks to their customers. However, this did not happen sufficiently and, with other factors also keeping consumer spending and investment low, aggregate demand did not increase enough with this policy alone.

Because the supply of credit by commercial banks remained scarce during the global financial crisis, quantitative easing was also introduced. The objective of the central bank was to help firms and individuals have access to finance. Quantitative easing is when a central bank buys financial assets (bonds issued by the government or firms) from commercial banks in exchange for money. It was hoped that the extra liquidity held by commercial banks would increase lending by commercial banks. Quantitative easing would also push down borrowing costs in the economy so both supply and demand for credit increases, and consumption and investment would rise.

However, although quantitative easing did stimulate a rise in real spending on goods and services, critics argue that it mainly pushed up asset prices, such as houses and the price of stocks and shares. Critics would argue that this caused inequality to rise. Household wealth increased for those who were already wealthy (i.e. held shares and owned property). Savers were also disadvantaged, since low interest rates, caused partly by quantitative easing, meant savings did not keep their real value as the inflation rate was higher than the interest rate.

In the current climate, if a recession occurs in many economies, with interest rates still low, the only way to reflate the economy, and avoid more quantitative easing, would be the use of fiscal policy.

Reflationary fiscal policy is an increase in government spending and/or a fall in taxes to create a net injection into the circular flow of income. This sets off the positive multiplier effect and would cause actual growth. The government needs to decide what type of spending to increase. Some types of government spending might increase LRAS too, such as education. Increasing spending on welfare payments might be used to reduce inequality.

If the government reduces taxes, this could be on income tax, corporate tax or taxes on goods and services. Again, cutting taxation might have other impacts on incentives to work, etc. However, using fiscal policy to increase aggregate demand may conflict against a balanced government budget. The government may end up running a budget deficit which is too high.

Although any reflationary demand-side policy will increase aggregate demand, it will not be clear by how much actual growth will rise. This is partly since the value of the multiplier is not known precisely. Individual demand-side policies also all have their own unique potential problems and may only be successful under certain conditions.