

# Chapter 5

## Domestic macroeconomic goals

### 5.1 Strong and sustainable economic growth

**Economic growth** for a country refers to any increase in the amount or level of national production that has occurred over time. The government's goal is to enjoy continued or sustained economic growth and avoid periods of slow or negative growth, such as the weaker economic conditions experienced in Australia during 2008-9. The government does not set a specific 'target' rate of economic growth, but it does outline broader growth objectives. In particular, budget documents have revealed that the government aims to 'promote an economic climate conducive to high levels of **sustainable** economic and employment growth....' The key term is 'sustainable', where sustainability in this context is underpinned by three important considerations that place an upper limit on any growth rate. In particular, growth rate cannot be so high that it:

- causes **inflation** to climb to unacceptable levels (which are levels above the Reserve Bank's target range of 2-3% over an economic cycle);
- results in significant **external pressures** on the economy (namely an excessive current account deficit and/or net foreign debt); and
- leads to an over use of the nation's **natural resources** (and therefore unfairly burdens future generations).



*The government's goal for strong and sustainable economic growth is to achieve the highest growth rate possible, consistent with strong employment growth, but without running into unacceptable inflationary, external or environmental pressures.*

A **sustainable rate of economic growth** is generally considered to be within the range of 3 – 3.5% per annum. This was confirmed by the former RBA Governor, Glenn Stevens, in September 2008. When responding to questions at the House of Representatives Standing Committee on Economics, he said the following:

*'The economy's potential to supply probably rises at about three per cent a year, give or take a bit. If demand is rising at four, five or six, which in various years it has, sooner or later you are going to reach the point where you are stretching that supply capacity.... You want to grow above trend to use up the capacity, but once you have done that you have to slow down to something more in line with the economy's medium-term growth of potential supply, and that probably has a three at the front at the most—three, 3% or something like that. You cannot have demand growth at five and expect that that will not give you a problem on inflation.'*

It is important to remember that what is considered to be a sustainable rate of growth can vary over time. During periods when **productivity growth** is strong (such as during the 1980s), it is possible for growth to be above 4% and remain sustainable. This is because the nation's productive capacity is being expanded by productivity growth, allowing stronger demand and production to take place without inflationary or external concerns. However, if productivity growth is slow, or if the nation's productive capacity is being stretched, even growth rates below 3% may be unsustainable. For example, just prior to the economic downturn of 2008-9, growth was sometimes below 3%, but the government was reasonably happy with the outcome considering unemployment consistently fell and capacity constraints were present in the economy. This suggests that any effort to achieve a higher than 3% growth rate over this period would have certainly been unsustainable.

The government will also take into account **international growth rates** when determining the acceptability of given growth rates in Australia. For example, since 2008-9, Australia's rate of economic growth averaged less than 3%, but it was generally considered a strong rate of growth in the context of most developed economies experiencing low or negative rates of growth over the same period. For example, Japan, the USA and many European economies actually experienced recessions during a period while rates of growth in Australia were mostly above 2%.

## 5.2 Measuring economic growth

In Australia, **Gross Domestic Product (GDP)** is used to measure the amount of production taking place in the economy and it is defined as the final market value of all goods and services produced in Australia over a given period. GDP is made up of the total **'value added'** during each stage of the production process and it is calculated every quarter by the Australian Bureau of Statistics (ABS) and is quoted in both dollar terms as well as the percentage change from one quarter (or year) to the next.

Each day there are millions of transactions taking place in the Australian economy. The value of these transactions is calculated by multiplying the relevant price of individual items sold by the prices paid. The total of all these transactions will be recorded as nominal GDP (or **GDP at current prices**). Given that the Australian Government and economists are concerned about economic activity in terms of its impact on employment, incomes and living standards, statisticians have devised ways to remove the price effect so that any increase in GDP is real in the sense that it represents an increase in the volume (or real value) of production.

The **chain volume measure of GDP** is used by the ABS to provide an estimate of real GDP in the economy. In simple terms, it involves using prices from the previous period and applying them to current period volumes. So any increase in the value must have occurred because of rising activity or volumes. It is this that provides the most accurate measure of economic activity in our economy, which in turn provides an indication of how well the economy is performing in terms of income/wealth generation and improvements in (material) living standards. Accordingly, when growth in real GDP is above zero, it means that the economy has experienced economic growth in real terms (after removing the effects of inflation).

For example, the economic growth rate reported by the ABS for the June quarter 2018 was 0.9%. This means that the total real value of production for the quarter ending June 2018 of \$441.9 billion was 0.9% higher in real terms than the level of production for the previous March quarter of \$438.2 billion. In annual terms, the rate of economic growth for the year to end June 2018 was 3.4%, meaning that the \$441.9 billion for the June quarter 2018 was 3.4% higher than the \$427.4 billion reported for the same quarter one year earlier.

### Interpreting GDP statistics

The ABS releases statistics for growth in real GDP on a quarterly basis (see ABS Catalogue 5206.0) and the figures can be reported by economists or the media in a number of ways. The ABS will provide figures for the chain volume measure of GDP (i.e. real GDP) in dollar terms for each quarter. Table 5.1 presents the figures between June 2016 and June 2018 in original, trend and seasonally adjusted terms.



Quarter	Original	Seasonally adjusted	Trend
Jun-2016	421786	419499	418568
Sep-2016	417691	419002	420342
Dec-2016	438558	422865	422188
Mar-2017	407103	424457	424653
Jun-2017	430311	427384	427328
Sep-2017	429270	430343	430181
Dec-2017	448708	433190	433835
Mar-2018	420002	438159	437778
Jun-2018	445029	441942	441667

The seasonally adjusted and trend figures are based on the original figures, but statistically manipulated to ensure they provide a more accurate reflection of the state of the economy (or more specifically, the level of economic activity)

during each quarter. For simplicity, the media and economists typically focus on the **seasonally adjusted** figures, which take out the effects of seasonal factors, which tend to hide the underlying changes in GDP from one quarter to the next. For example, this can clearly be seen within Table 5.1 during the peak trading period every year, which of course is the December quarter. Each year, the December quarter figure for real GDP in original terms is very high due to the effects of Christmas shopping. The ABS takes out this effect to arrive at seasonally adjusted figures that do not record large increases in real GDP for December quarter of every year.

**Trend figures** for GDP involve the ABS smoothing out the peaks and troughs within the seasonally adjusted figures to provide an indicator that reflects the underlying movement of real GDP over time.

Whenever GDP figures are reported without a reference to whether it is the original, trend or seasonally adjusted figure, it is best to assume that the figure being reported is the seasonally adjusted one.

Figures for economic growth are rarely reported in absolute dollar terms as they are shown in Table 5.1. Instead of referring to these dollar values, the media will typically report the (seasonally adjusted) movements in percentage terms. For example, the change in real GDP (i.e. economic growth) for the June quarter 2018 was 0.9%. This is derived in the following way:

$$\text{Quarterly growth (June Qtr)} = \frac{\text{GDP}_{\text{Jun}} - \text{GDP}_{\text{Mar}}}{\text{GDP}_{\text{Mar}}} = \frac{441942 - 438159}{438159} \times 100 = 0.9\%$$

This means that there was a 0.9% increase in the volume (or real value) of goods and services produced over the three month period (in seasonally adjusted terms).

Note that the above growth rates are quarterly rates of economic growth. These will include any short-term volatility of economic activity which may be hidden within annual figures. This fact is highlighted when calculating annual growth rates for the year ended 30 June 2018 from the figures in Table 5.1. The **annual rate of economic growth** is most commonly derived by using the real GDP dollar values for the latest quarter and comparing them to the values for the quarter one year earlier. This is also called the '**year-on-year growth rate**'. The calculation for the year to end 30 June 2018 is done as follows:

$$\text{Annual growth (year on year)} = \frac{\text{GDP}_{\text{June 18}} - \text{GDP}_{\text{June 17}}}{\text{GDP}_{\text{June 17}}} = \frac{441942 - 427384}{427384} \times 100 = 3.4\%$$

Notice that economic growth for the year ending June 2018 was 3.4%. This compares to the quarterly growth rate for the June quarter of 0.9%. Some economists will multiply the quarterly rate of economic growth by four (quarters) to arrive at an **annualised growth rate**. The annualised growth rate for the June quarter 2018 is simply (4 x 0.9%) = 3.6%, which is very similar. However, at times there can be a big difference between the annualised rate and the 'year on year rate'. For example, over the March quarter 2018, the quarterly rate of 1.1% converted to an annualised rate of 4.4%, which was significantly higher than the year to June rate of 3.2%. The lower year to June rate is the more realistic figure given that it is based on all of the previous four quarters, whereas the annualised rate ignores the first three quarters, which recorded lower rates of growth than the 1.1% recorded in the March quarter.

$$\text{Annualised growth (June Qtr)} = \text{Quarterly growth} \times 4 = 0.9 \times 4 = 3.6\%$$

$$\text{Annualised growth (March Qtr)} = \text{Quarterly growth} \times 4 = 1.1 \times 4 = 4.4\%$$

### Study tip

Students are not expected to know how the ABS arrives at its three measures of GDP nor when or why each of the figures are used. For the purposes of VCE Economics, all that is required is a knowledge of real GDP (or the chain volume measure of GDP), what it means and how changes in its level can be interpreted in terms of its implications for the economy.

### Study tip

A 'key skill' listed in the study design is the requirement to calculate relevant economic indicators using relevant or hypothetical data. To practise this skill, using some of the formulas introduced on this page, attempt Activity 5a.

## Activity 5a: Calculating economic growth

Assume that GDP figures for the years 2019 - 2021 were as follows :

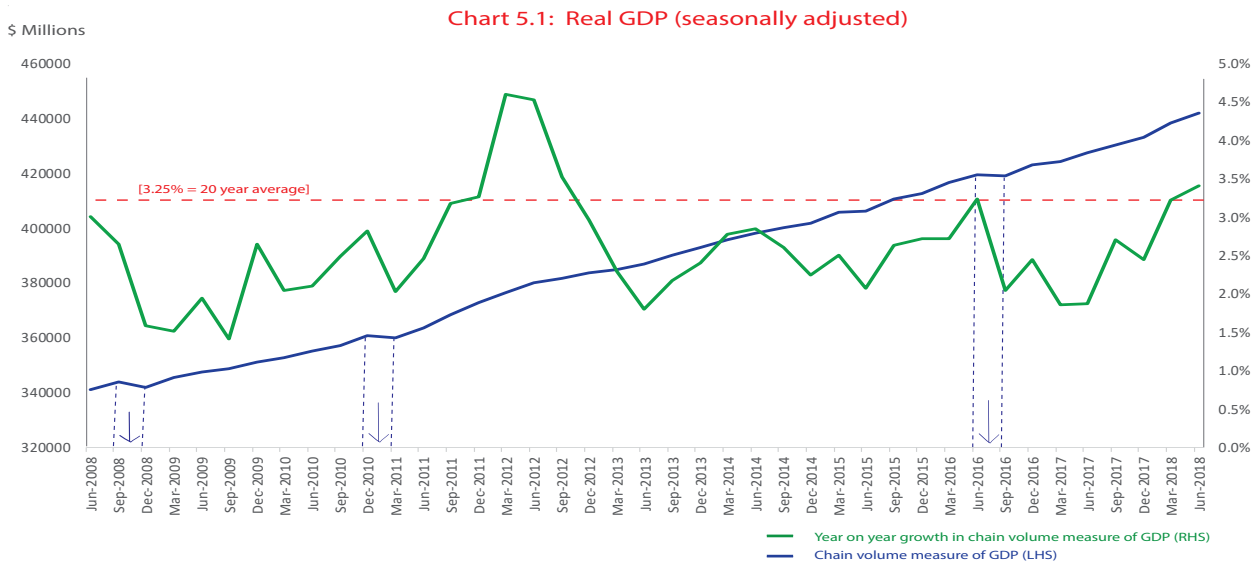
Chain Volume Measure of GDP (\$billion)	
Quarter	Hypothetical figures
Dec-2019	450
Mar-2020	455
Jun-2020	460
Sep-2020	470
Dec-2020	465
Mar-2021	470
Jun-2021	475
Sep-2021	480
Dec-2021	485



### Questions

1. Calculate the 'year on year' growth rate for the year to end December 2021.
2. Calculate the rate of growth for the December quarter 2021 and the annualised rate of growth for the same quarter.
3. Explain why there is a difference between the two rates of growth you calculated for December quarter 2021 in question 2.
4. Calculate the percentage change in the real value of production over the March quarter of 2021 and comment on its significance in relation to the government's goal for strong and sustainable growth.
5. Calculate the quarterly and annualised rate of economic growth for the December quarter 2020.
6. Explain why Australia's annual rate of growth has not been negative at any stage over the past four years despite the growth rate experienced in the December quarter of 2020.
7. Describe the trend in the annual rate of growth in real GDP since December 2019.

Chart 5.1 highlights the growth in real GDP over the past 10 years in both dollar terms (the blue line) and in terms of the 'year-on-year growth rate' compared to Australia's long term (20 year) trend rate of growth of 3.25% which is shown by the red dashed line in the chart.



Between June 2008 and June 2018, quarterly real GDP has increased from \$ 341.1 billion to \$441.9 billion, an increase of \$100.8B or 30% over the 10 years, which equates to an average growth figure of 3.0%. Real GDP declined three times, first in the December quarter of 2008, once more in the March quarter of 2011 and again in the September quarter 2016. However, these declines in real GDP (evidenced by a fall in the blue line within Chart 5.1) did not extend for more than one quarter, which accounts for the green 'growth rate' line never falling below zero percent. In terms of annual figures, real GDP increased from \$1.35 trillion to \$1.74 trillion between the financial years 2007-8 and 2017-18, which is derived by adding up the four quarters of GDP for each of the years in question.

The chart also highlights that Australia's rate of economic growth has been running below trend for most of the past ten years, which is consistent with an economy emerging from a global economic slowdown in the early period (i.e. following

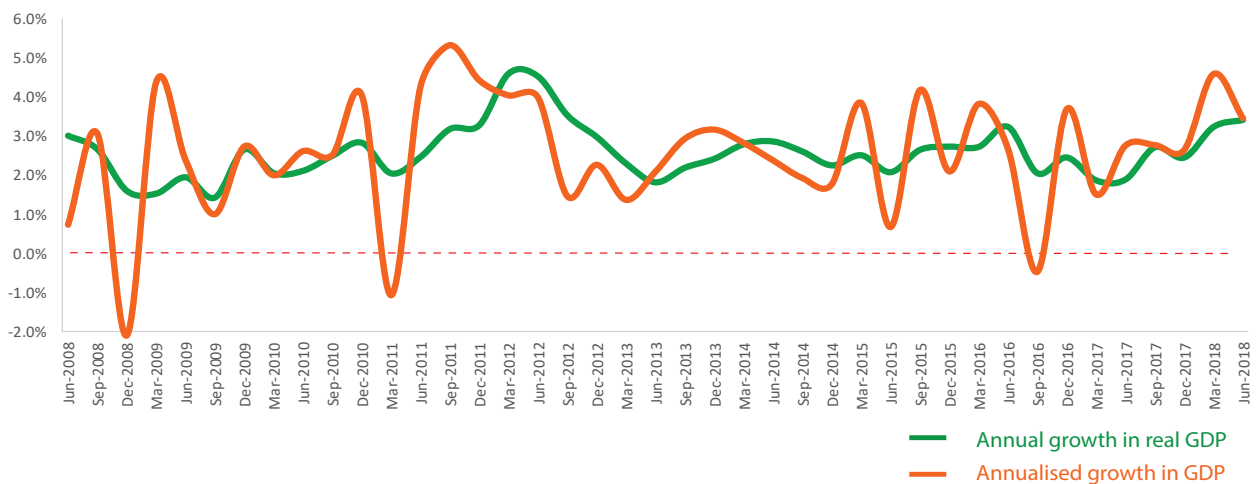
2008-9) and one struggling under the weight of a relatively high AUD for much of the period and lower commodity prices (since 2011). The spike in economic growth over 2011-12 largely reflected the ongoing effects of the mining boom, with successive years of rising commodity prices creating large growth in incomes, Consumption and Investment. Since then, the growth rate has remained relatively high (by international standards) due largely to the growth in mining exports volumes (despite lower prices for mineral exports) which accelerated after years of Investment and expanded capacity as Australia enjoyed the benefits of the third phase (production phase) of the mining boom. [See Case study/Analysis task 7] in Chapter 7.] In Chapter 6, we will examine a number of demand and supply factors that have influenced Australia's rate of economic growth over the past two years.

Chart 5.2 includes the annual rate of growth as depicted in Chart 5.1, but also includes the **annualised rate of economic growth** (based on quarterly figures) over the same time period. Note that both rates of growth are derived from the same raw figures, yet they tell a slightly different story. The annualised quarterly figures are more instructive in terms of their ability to isolate turning points and capture the volatility occurring within any one year period. For example, the annualised figures clearly highlight the three periods in which Australia experienced negative economic growth, whereas this is not discernible when examining the annual growth rates. Similarly, the recent very strong annualised growth rate for March 2018 of 4.4% is not evident when analysing the year-on-year growth figure of 3.2%.

### Study tip

*The current VCE Economics Study Design (2017-2021) only requires students to have knowledge of key statistics 'over the past two years'. Accordingly, students are not expected to remember economic growth rates prior to 2017. However, a 'key skill' is the requirement to 'explain trends', which involves the ability to explain the trend movement in statistics over a longer time frame, such as identifying or explaining the trend movement in economic growth as presented in Chart 5.1.*

Chart 5.2: Real GDP (annual vs annualised growth)



## 5.3 Why Australia pursues economic growth

All governments pursue economic growth as it is the primary means by which nations can maintain and/or improve living standards over time.

### Growth in real income

As we learned in Chapter 4, when discussing the circular flow model of income, growth in production typically means that there has been growth in incomes that accrue to the factors of production, such as wages, interest and dividends. These higher income levels will enable some members of society to have a greater ability to purchase goods and services that satisfy their wants, thereby having a positive impact on **material living standards**. Economic growth can also provide individuals and groups with the opportunity to enjoy an increase in non-material living standards, encompassing more intangible factors that shape our **'quality of life'**. These factors can include things like general happiness, freedom of expression, freedom of movement, self esteem, a feeling of making a difference to others, and so on. This is because higher incomes can provide individuals with a greater opportunity to become philanthropic or charitable, helping to improve the quality of life enjoyed by others, as well as their own.

While **real GDP** is the most common measure of production volumes in the economy, the best measure of real income growth in the economy is the change in real **Gross Domestic Income (GDI)** from one period to the next. While GDI is closely related to GDP, GDI attempts to measure the income received from the volume of goods and services that has

been produced. During periods where there is little movement in Australia's terms of trade (prices received for exports divided by the prices paid for imports), GDP and GDI will be equivalent. However, when the TOT is increasing, GDI will exceed GDP, and when the TOT is falling, GDP will exceed GDI. [See Activity 5b.]

### Study tip

*A knowledge of the differences between GDP and GDI is not required for VCE Economics. It is included here because the term is used often in the press when there are significant changes in the terms of trade. Activity 5b covers an interesting period where marked changes in the TOT caused what became known as an income recession in 2014.*

## Lowering the unemployment rate

Economic growth is also pursued because of its positive relationship with employment growth and the ability of employment growth to reduce rates of **unemployment**. Governments recognise the real costs of unemployment in terms of the potential waste of valuable labour resources, the debilitating effects it can have on psychological well being and the unhealthy relationship between unemployment and both crime and social unrest.

If economic growth exceeds the rate of growth in productivity, it will tend to result in a larger '**derived demand for labour**' (because the demand is derived from, or stems from, a larger demand for goods and services) and will tend to increase employment levels. Provided that the rate of economic growth and employment growth are strong enough to absorb growth in the size of the labour force (or a growing participation rate), economic growth should therefore help to reduce the rate of unemployment. To the extent that unemployment worsens both material and non-material living standards, strong rates of economic growth will therefore help to further improve living standards. In addition, higher employment levels will involve a greater sharing of the income gains from economic growth, further contributing to material living standards or welfare.

## Increased ability of government to provide essential services

Economic growth leads to an increase in revenue for the Federal Government in the form of taxes, such as the GST and incomes taxes, along with state government taxes, such as payroll taxes and stamp duties. Increased amounts of revenue allows governments to spend more on essential services, including more funding for hospitals, schools and/or infrastructure more generally, such as new or improved roads, rail, port or telecommunications infrastructure. The provision of these services helps to increase living standards in material terms, as the higher quality of **human and physical capital** (e.g. more highly trained graduates and faster telecommunications services) provides a further stimulus to economic growth.

In addition, stronger rates of economic growth enable governments to improve the living standards of those less well off via welfare spending or other forms of transfer income, as well as the provision of other essential services to disadvantaged members of society. The increased tax revenue that will be received from higher incomes can be used to help reduce the incidence of social ills such as poverty, homelessness, drug addiction, problem gambling, alcoholism, smoking, indigenous disadvantage, child abuse, violence against women and crime more generally.

## Why is a growth rate of approximately 3.00 - 3.50% our 'target'?

For a young country like Australia, the government pursues a relatively strong rate of economic growth to ensure that a number of things happen.

Firstly, the government is keen to ensure that the growth rate exceeds the rate of growth in productivity (output per unit of input) over time. Governments and business continue to invest huge amounts in research and development in order to achieve the technological progress that helps to boost productivity. While these advances have helped to expand the nation's productive capacity and permit higher sustainable growth rates, they can have a negative impact on employment growth. For example, continuing rates of productivity growth in the order of 1% means that a 1% increase in economic growth is likely to be insufficient to generate an increase in employment. This is sometimes referred to as '**jobless growth**', where higher output is achieved via greater productivity of existing inputs, negating the need to hire additional labour. Accordingly, productivity growth forces the government to aim for higher rates of economic growth in order to achieve its goal of employment growth over time.

Secondly, the government is keen to ensure that the rate of growth is sufficient to cater for a continually growing population. For example, Australia's annual population growth of approximately 1.4% means that economic growth needs to be greater than 1.4% in order to avoid a reduction in real **GDP/GDI per capita**. If real GDP growth falls below population growth it will signify that the 'average' Australian is materially worse off than in the previous period. In addition, higher population growth will also increase the size of the labour force over time and make it more difficult for employment growth to have a favourable impact on the unemployment rate. This is because more of the new jobs will be taken by new entrants to the labour force, such as skilled migrants, forcing rates of economic growth to be higher yet again.

Finally, the government wants to see economic growth at a high enough rate to actually boost overall living standards or welfare of Australians. This means that economic growth must be higher than the rate of population growth, but not so high that it causes a diminution of non-material living standards for current or future generations of Australians. Accordingly, there is a much greater focus on the need for economic growth to be sustainable over time.

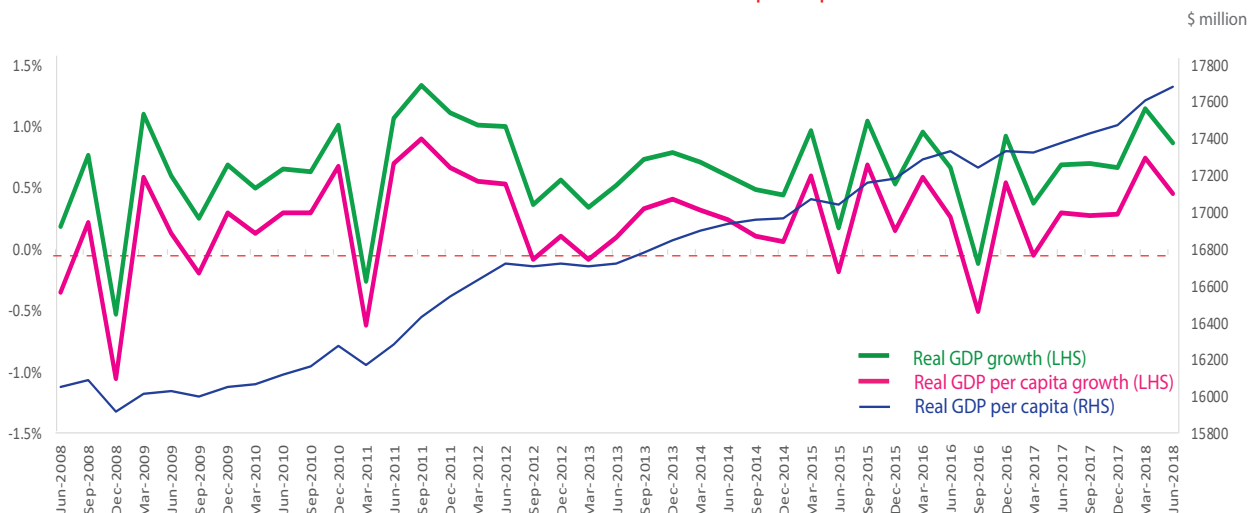
Chart 5.3 compares the quarterly growth in real GDP (i.e. economic growth) with the level and growth in real GDP per capita over the past 10 years. The rise in real GDP per capita (the blue line) over the entire period, from \$16,054 per quarter in June 2008, to \$17,685 per quarter in June 2018 suggests that living standards have increased over the past 10 years by 10%. However, an examination of the quarterly growth rates in real GDP and real GDP per capita reveals a less flattering story about the economy and material living standards.

### Study tip

*Real GDP per capita is the most common measure of material living standards. However, it is actually not the best measure of our ability to purchase goods and services. This is because GDP does not provide the best estimate of 'income' over any particular period, unlike Gross Domestic Income. See Activity 5b: [An income recession over recent years?]*

The chart shows that there is a clear correlation between the two variables, as expected, with real GDP per capita falling (i.e. 'growth' in real GDP per capita is negative) on those occasions over the past 10 years when (quarterly) economic growth was negative (i.e. 2008, 2011 and 2016). However, there are additional periods when real GDP per capita also fell (indicating lower living standards) despite the fact that economic growth was positive over the same period (i.e. 2009, 2012, 2013 and 2015). This means that over these periods, economic growth was not high enough to counter the effects of a rising population or that growth in the economy was lower than growth in the population, resulting in average production per person falling. The data therefore suggests that material living standards have declined a number of times since 2008 (evidenced by the blue line falling and the pink line falling below zero), despite material living standards in total rising over the ten year period (by 10%).

Chart 5.3: Real GDP vs real GDP per capita



## Review questions 5.1

1. Define what is meant by 'strong and sustainable economic growth,' referring to inflation, external pressures and natural resources.
2. Explain what could happen to long term economic growth if growth rates are above 5% or 6% in the short term.
3. Outline the relationship between productivity growth and sustainable economic growth.
4. Define gross domestic product (GDP).
5. Distinguish nominal GDP from real GDP.
6. Explain why the government is keen to arrive at an estimate for real GDP instead of relying on nominal GDP.
7. Describe the different ways of interpreting GDP statistics, focusing on the quarterly, annual and annualised rates of growth.
8. Explain how it is possible for Australia to record positive annual growth in real GDP yet record a negative rate of growth for two quarters of that year.
9. Discuss how the pursuit of strong rates of economic growth for Australia can impact on real incomes, the unemployment rate and the provision of essential government services.
10. Explain why growth rates below 3% may be regarded as insufficient.

11. Define the terms 'jobless growth' and 'real GDP per capita.'
12. Outline how material living standards or incomes on average can decline despite positive rates of economic growth.
13. Analysis of real GDP data suggests that living standards have fallen over the last 10 years. Discuss.

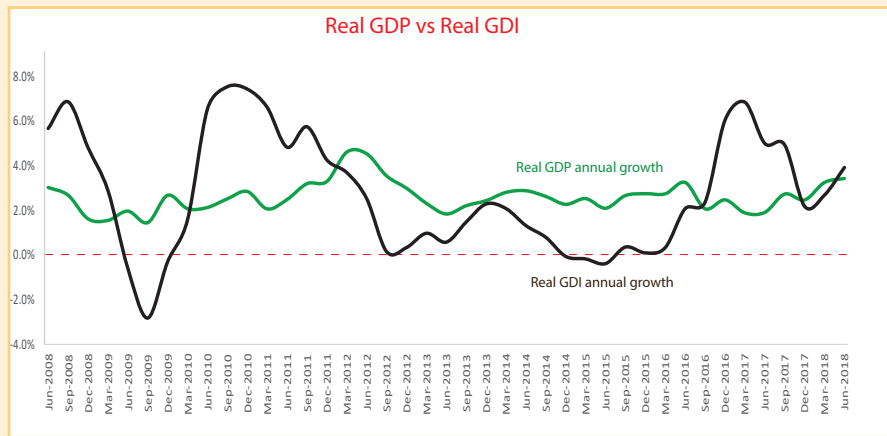
### Activity 5b: An income recession over recent years?

Australia has not experienced a 'recession' (defined as two consecutive quarters of negative growth in real GDP) since 1990-91, when real GDP declined for four consecutive quarters. Even during the global financial crisis (GFC) of 2008-9, the annual growth figure remained above 1.4%, with negative growth being isolated to the December quarter of 2008 (of -1.1%).

Since then, annual growth rates have remained above 1.8%, even climbing as high as 4.6% for the year ended March 2012, and as high as 3.4% for the year ended June 2018. While growth rates have generally been below the government's unofficial target of approximately 3.25% over the past 10 years, they have been 'relatively' strong given the economic turmoil being experienced in other advanced economies, such as in Europe, the USA and Japan. The Australian government over this time has typically focused on how well the economy is performing. Even with growth rates less than 3.25%, the figures suggested that Australia was producing more goods and services than before, and therefore the country did not experience a recession.

This is where a focus on GDP as a measure of the health in the economy becomes a little misleading. A focus on Real Gross Domestic Income (GDI) tells a different story. Real GDI effectively measures the income we receive from the production and sale of goods and services and it reveals that Australia went backwards on two significant occasions over the past 10 years. First, real GDI fell, on a year ended basis, over three consecutive quarters in 2009 (June, September and December)

and second, this occurred again for three consecutive quarters over 2014-15 (December, March and June). These periods are shown in the chart by the black real GDI line falling below zero. This means that over these periods, production of goods and services in the economy continued to grow (i.e. the green real GDP line remained above zero), while incomes earned from that production fell.



This means that although the economy grew in terms of the volume of goods and services produced in 2009 and 2015, the income we received from those goods and services actually fell. Accordingly, in 2009 and 2015, Australia didn't have a recession if we focus on production, but it did have a recession if we focus on income. This was referred to by a number of economists as an 'income recession' because we experienced a decline in GDI for more than two quarters. It is in this respect that a focus on GDP (or even GDP per capita) as a measure of material living standards can be misleading. Given that material living standards ultimately derive from our ability to purchase goods and services, a fall in income (rather than production) is a better guide as to how our material fortunes have changed.

But why was there a relatively large difference between production (GDP) and income (GDI) over the past 10 years, with growth in income exceeding production for the bulk of period up to 2011, the reverse occurring up to 2015-16, before income once more exceeded production over 2016-17? The answer lies primarily in the changes in the terms of trade (TOT). During the TOT boom, rising prices for commodities resulted in the incomes earned by mining and related industries climbing, which raised real GDI but had minimal (direct) impact on real GDP because the conversion of nominal to real GDP strips out the effect of higher commodity prices. However, as the saying goes, 'what goes around comes around'. The fall in commodity prices after 2011-12 resulted in lower incomes and meant that real GDI fell below real GDP. The rebound in commodity prices over 2016-17 has once again resulted in income (GDI) rising faster than production (GDP).

All up, the movements in the TOT have been primarily responsible for the difference between real GDP and real GDI. For the period of time when the TOT was booming/rising (pre-2011 and again in 2016-17), the growth in incomes exceeded the growth in production and real GDP underestimated the health of the economy (or the improvement in material living standards). For the period of time when the TOT was in decline (post-2011), the growth in production exceeded the growth in income and real GDP overestimated the health of the economy/material living standards. Of course, if we assume that there is no volatility in the terms of trade, we can expect a much closer correlation between the growth in real GDP and real GDI into the future.

#### Application questions

1. Identify the government's goal for economic growth.
2. Explain why a rate of growth in real GDP less than 2% might not lead to an increase in material living standards.
3. Distinguish real GDP from real GDI.
4. Explain why real GDI fell over 2012 and 2015 when real GDP increased.
5. Distinguish a 'recession' from an 'income recession'.
6. Discuss whether changes in real GDI are a better measure of material living standards compared to real GDP.
7. Using the chart provided above, describe and account for the movement in real GDP in comparison to real GDI since 2015.
8. Assuming the TOT do not vary into the future, explain how this is likely to impact on the relationship between changes in real GDI and real GDP.



## 5.4 The goal of full employment

The ideal of every government in the world is to have a situation where every person that wanted a job is actively employed in the economy. This ideal, however, is rarely achieved in a market-based economy because the most efficient allocation of resources may actually require that some unemployment exists at any particular time – this is sometimes called the **‘natural rate of unemployment’** (see next page). Accordingly, full employment is generally regarded as that level of unemployment that exists when the government’s economic growth objective is achieved and where cyclical unemployment is non-existent. This means that when the economy is growing at its maximum ‘sustainable’ rate, unemployment will be at its lowest point, and the economy will be considered to be at **‘full employment’**.

There is no magic level or rate of unemployment that is considered to be the ‘full employment rate of unemployment.’ This is partly because any government is reluctant to set concrete statistical targets as it sets itself up for criticism in the event that the target is not achieved. In addition, the structure of the economy typically changes over time, causing shifts in what is considered an acceptable rate of unemployment. To illustrate, an unemployment rate of 5% ten years ago is likely to be more acceptable than a 5% unemployment rate today, given the greater incidence of underemployment (see underutilisation rate in Section 5.5) currently in Australia.



Government budget documents reveal that the government’s full employment goal involves the achievement of:

*‘the maximum sustainable rate of reduction in unemployment by lifting the pace at which economic growth can be maintained without running into inflationary and external pressures’. ([www.budget.gov.au](http://www.budget.gov.au))*

### A definition of employment and unemployment

In every economy, the ‘household’ sector will provide labour resources to the ‘business, government and not for profit sectors.’ It typically involves an exchange between two consenting parties, the outcome of which sees **labour input** being exchanged for some form of income or reward. In this respect, **employment** is a key component of economic activity and provides the impetus for growth in the economy and improvements in living standards. While there are many examples of people being ‘employed’ in all manner of pursuits, the statistical definition of employment is quite specific.

To be classified as **‘employed’** by the ABS, one needs to be over 15 years of age and working more than one hour per week in return for some form of measurable remuneration (such as wages). To be classified as **‘unemployed’**, one needs to be over 15, without work or working for less than one hour per week, and actively looking for (more) work. Based on these ABS definitions, there are countless examples of people who would consider themselves to be gainfully ‘employed,’ but may be considered unemployed (such as people working voluntarily for charities and simultaneously seeking paid employment). Similarly, there are numerous examples of people who perform valuable roles in society who are neither considered employed nor unemployed, such as stay at home parents or people caring for others with illnesses.

While the overriding emphasis in this chapter will be a focus on employment as defined by the ABS, remember that there are many examples of individuals who are engaged in ‘non-employment’ pursuits who are no less important to the welfare of our country than those who are statistically employed.

#### Study tip

*It is useful to remember that employment does not only include those who are actually employed by another party or organization. It also includes those who are self-employed as business owners or contractors. In this respect they are not employed by another organization, but rather they are employed by the business sector, or more accurately – themselves!!*

### NAIRU and the natural rate of unemployment

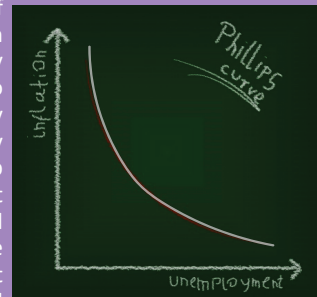
Generally speaking, it is fair to say that the full employment objective involves the attainment of the lowest unemployment rate possible before inflation begins to accelerate. This is sometimes referred to as the **Non Accelerating Inflation Rate of Unemployment (NAIRU)** and both the Commonwealth Treasury and the RBA have estimated that Australia’s NAIRU was approximately 5% in 2014. However, changes to the labour market over the past couple of years (e.g. increasing flexibility, growth in casualisation and rising underemployment) suggest that NAIRU may be even lower than 5%. Assuming a NAIRU of 5%, it means that any attempts to achieve unemployment rates below 5% are likely to lead to unacceptable levels of inflation. This is consistent with Australia’s experience leading into 2008, where unemployment

rates as low as 4.1% were accompanied by inflation rates that moved well outside the RBA’s 2-3% target range (e.g. 5% inflation in September 2008). In contrast, Australia’s unemployment rate has consistently been above the 5% range since 2012 while the rate of inflation has been under control (below 3% inflation).

The NAIRU is sometimes referred to as an economy’s **‘natural rate of unemployment,’** where a healthy rate of economic growth (in the order of 3-4% per annum) will still be accompanied by some unemployment. Indeed, this ‘natural rate of unemployment’ is likely to be symptomatic of an efficient economy, where some levels of unemployment actually help to drive more efficient outcomes over time, particularly if they are more transitory (temporary) in nature. For example, it is healthy and natural for individuals to move from one job to another in order to enhance their careers or seek new challenges, which is good for efficiency. In addition, it is equally possible for some individuals to make a negative contribution to efficiency when they are employed, and it might be in the national best interest that they remain unemployed until education and training can boost their productivity and employability.

### Box 5.1 The Phillips curve

The Phillips curve depicts the relatively short run relationship or trade-off that sometimes exists between inflation and unemployment. When inflation increases in response to pressures from a growing economy, it is usually associated with lower unemployment. Accordingly, government efforts to reduce cyclical unemployment by stimulating AD typically results in inflationary pressure. Similarly, lower inflation that accompanies lower growth will usually be associated with higher unemployment as the low growth rates lead to job losses. Efforts by governments to lower inflation via demand management tools (i.e. by reducing demand) typically jeopardise the achievement of full employment. Note that the Phillips curve cannot account for the existence of **stagflation**, where low economic growth and high unemployment exist alongside high rates of inflation. Similarly, it cannot account for more ideal economic conditions where high economic growth and low unemployment occur alongside low rates of inflation. Continual efforts by governments to exploit the ‘trade off’ between inflation and unemployment result in a vertical long run Phillips curve, but this is beyond the scope of the VCE course.



Typically, when an economy is at its full employment level, this implies that unemployment caused by insufficient levels of AD (i.e. cyclical unemployment) is zero. Any (natural) unemployment that still exists will ordinarily be made up of a combination of the following types of unemployment, which will all be investigated more thoroughly in Section 5.6.

- **Structural unemployment** – where the skills of the unemployed do not match the skills required by industry.
- **Seasonal unemployment** – where a person is unemployed because their skills are only demanded during certain times of the year. The most common examples are fruit pickers and ski resort workers.
- **Frictional unemployment** - where a person is unemployed for a period of time while they are moving from one job to another.
- **Hard core unemployment** - where a person is unemployed due to mental, physical or other characteristics that prevent them from receiving a job offer.



The government seeks to limit the extent and duration of structural unemployment via its use of budgetary policy (see Chapters 8 and 9) and it tries to minimise the incidence and effects of ‘hard core’ unemployment. However, it is quite limited in its ability to significantly reduce the unemployment rate below the natural (or NAIRU) level. Importantly, any attempts to achieve very low rates of unemployment (below approximately 5% ) are likely to ignite inflationary pressure and risk higher rates of unemployment in the medium to longer term.

The main type of unemployment the government seeks to reduce or eliminate is **cyclical unemployment**. This occurs when the economy is not operating at its full capacity due to insufficient aggregate demand, such as during 2008-9, when the unemployment rate increased to as high as 5.9% as the economy was in the midst of an economic downturn (with the quarterly growth rate falling below zero in December 2008). The most recent example of relatively high rates of cyclical unemployment occurred during 2014-5, where the unemployment rate climbed well above the NAIRU level to a rate above 6%, and existed alongside rates of economic growth below trend (approximately 3%). Further examination of the causes of unemployment will take place in Section 5.6.

## Review questions 5.2

1. Define the terms 'employment' and 'full employment'.
2. Explain what is required for a person to be classified as 'unemployed' according to the ABS definition.
3. Define the 'non accelerating inflation rate of unemployment.'
4. Describe the relationship that is likely to exist between inflation and unemployment.
5. Explain what is meant by the 'natural rate of unemployment.'

## 5.5 Labour force measurement

The ABS collects labour force statistics via its monthly Labour Force Survey. It surveys approximately 0.32% of the civilian population (which includes 26,000 houses, flats, etc.) and ascertains the 'employment status' of those surveyed. From these results, it 'extrapolates' the figures to arrive at labour force statistics that are typically representative for the entire country. To be classified as employed, a person must be over 15 years of age and working for more than one hour per week. To be classified as unemployed, a person must be over 15, without employment (or working less than one hour per week) and actively looking for work.

From the August 2018 (original) figures, the ABS calculated that the total civilian population of a working age (i.e. over the age of 15) amounted to 20,300,178. We can separate this working age population into the following three categories:

A. Employed persons	12,559,253
B. Unemployed persons	698,509
C. Persons not in the labour force but of a working age (over 15)	7,042,416

### Study tip

*The ABS definitions for employment and unemployment are slightly more involved as they attempt to account for a number of particular circumstances affecting those people interviewed by ABS surveyors, such as those workers on strike. Knowledge of these intricacies is not required for you to develop an understanding of 'full employment' and the policy implications that will be covered in later chapters.*

The ABS defines the **labour force** as all those people aged 15 and over who are willing and able to work. The labour force therefore comprises both those who are **employed** and those who are **unemployed** (i.e. willing and able to work but unable to find a job). Accordingly, (A) + (B) represent the labour force. As at August 2018, the size of the labour force was 13,257,762 people, made up of 12,559,253 employed and 698,509 unemployed.

### The unemployment rate

The unemployment rate represents the percentage of the labour force that is unemployed. It is calculated by dividing the number of unemployed by the total labour force. It is therefore calculated as follows:

$$\begin{aligned}
 \text{U/E rate for month of August 2018} &= \frac{\text{Unemployed}}{\text{Employed} + \text{unemployed}} \times 100/1 \\
 &= \frac{\text{Unemployed}}{\text{Labour force}} \times 100/1 \\
 &= \frac{B}{A + B} \times 100/1 \\
 &= \frac{698,509}{13,257,762} \times 100/1 \\
 &= 5.3\%
 \end{aligned}$$

This means that during August 2018, 5.3% of all Australian civilians who were able and willing to work, were unsuccessful in gaining employment

## The participation rate

The participation rate is defined as the percentage of the total 'working age' population (over 15) who are members of the labour force - who are participating in the sense of either working or willing and able to start work, and actively seeking work. The working age population is A+B+C (20,300,178 people) and it really represents Australia's 'potential' labour force. Accordingly, the labour force participation rate tells us what proportion of our **potential labour force** is actually in the **labour force**.

The participation rate is therefore 65.3% as at August 2018 and was calculated by:

$$\begin{aligned}
 \text{PR for month of August 2018} &= \frac{\text{Labour force}}{\text{Working age population}} \times 100/1 \\
 &= \frac{A + B}{A + B + C} \times 100/1 \\
 &= \frac{12,559,253 + 698,509}{12,559,253 + 698,509 + 7,042,416} \times 100/1 \\
 &= \frac{13,257,762}{20,300,178} \\
 &= 65.3\%
 \end{aligned}$$

### Study tip

The ABS reports its labour force statistics in three main ways. First, using original figures. Second, using seasonally adjusted figures that attempt to remove the effects of annual/seasonal variations (such as falls in unemployment over the peak Christmas trading period). Third, by using trend estimates that seek to 'smooth out' the seasonal figures and provide a better picture of the underlying forces impacting on labour markets. We will use original or seasonally adjusted figures throughout this chapter and you do not need to know the difference between the three sets of figures when studying 'full employment.'

This means that during August 2018, 65.3% of all Australian civilians who were 'capable of working' (i.e. people over the age of 15) actively offered their services to labour markets. In other words, 65.3% of our potential labour force were members of the actual labour force.

## Hidden unemployment – discouraged job seekers

There are a group of potential workers who are not classified as members of the labour force despite the fact they would like to work and would accept a job offer. They are excluded from unemployment statistics because they have become discouraged about their job prospects and are not actively seeking employment. In this respect they are referred to as '**discouraged job seekers**' or the '**hidden unemployed**'. Typically, people in this situation include those who are considered too old by employers, those lacking necessary skills (e.g. those who initially became structurally unemployed before they stopped looking for work) and those who consider that labour market conditions are extremely poor. These discouraged job seekers include those who have stopped looking for work over the past few years because of below trend rates of economic growth and a relatively weak labour market, characterised by an unemployment rate above the natural rate and limited full-time employment opportunities.



In its latest (and final) publication of Persons Not in the Labour Force (Cat 6220.0), the ABS revealed that the number of 'discouraged job seekers' as at September 2013 was 90,700 with approximately 56% being over the age of 55. If we add these numbers to the unemployment figures, we arrive at an 'adjusted' unemployment rate (including the hidden unemployed) of 5.9%, compared to a reported unemployment rate of 5.2% at the time. In this respect, the unemployment rate provides a misleading picture about the true extent of unemployment in Australia.

## Underemployment and the underutilisation rate

Unemployment figures commonly featured in the press and quoted in Parliament do not capture the incidence of **underemployment** (or **disguised unemployment**). The underemployed are those individuals that are classified as employed, but who are at least partly ‘unemployed’ in the sense that they would prefer to be working more hours.

It is important to understand the difference between these workers and those people considered the **‘hidden unemployed’** - the discouraged job seekers referred to in the previous section. They were the potential job seekers who were no longer actively seeking employment, usually because of poor labour market conditions. However, underemployed workers are very different. This measure will typically include those individuals who are working part-time (or casually) when they prefer to work full-time (more than 35 hours per week). Alternatively, they may be underemployed because their employer is operating below full capacity due to a downturn in economic activity, such as the economic downturn over 2008-9 and the below trend growth that has occurred in Australia since then.



In August 2018, there were an estimated 1,063,872 people who were **underemployed**, compared to 698,509 people who were unemployed for the same period. These figures taken together represent the number of people who are **‘underutilised’** in the Australian economy and, as a percentage of the potential labour force, represents an underutilisation rate of 13.3%. This has been calculated as follows:

$$\begin{aligned}
 \text{Underutilisation rate (August 2018)} &= \frac{\text{Unemployed} + \text{Underemployed}}{\text{Labour force}} \times 100/1 \\
 &= \frac{698,509 + 1,063,872}{13,257,762} \times 100/1 \\
 &= 13.3\% \\
 \text{OR} \\
 &= \text{Unemployment rate} + \text{underemployment rate} \\
 &= 5.3\% + 8.0\% \\
 &= 13.3\%
 \end{aligned}$$

This means that during August 2018, there were 1.76 million Australians (or 13.3% of the labour force) who were underutilised in the sense that they were either without work or wanted to work more hours

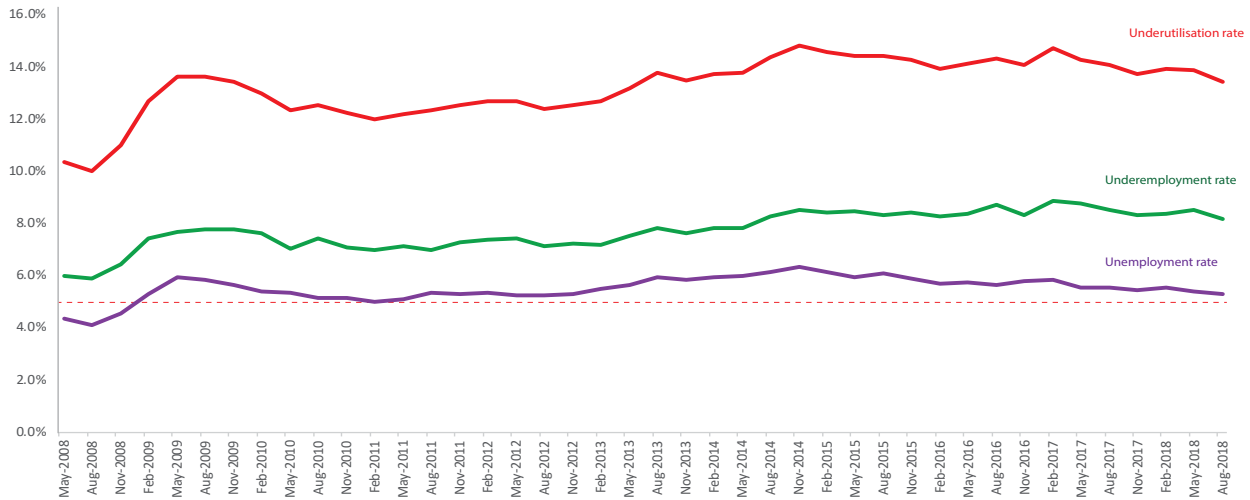
### Study tip

*Don't overestimate the importance of unemployment statistics as a guide to the state of the economy or the success of government policies. This is because it is possible for employment to increase and the number of unemployed to fall without any change in hours worked or economic activity. To illustrate, assume that a large business decided to replace 10,000 of its full time employees (working 40 hours per week) with 20,000 reluctant casual/part-time employees (working on average 20 hours per week). This would result in a lower unemployment rate, a higher underemployment rate, no change in the underutilisation rate and no immediate change in economic activity.*

The existence of underemployment of over one million people in Australia highlights a real shortcoming of the government's focus on unemployment statistics as a measure of its success in managing the economy or achieving ‘full employment’. In particular, over the years 2001-2008, the unemployment rate declined by close to three percentage points (from over 7% to as low as 3.9%). Over the same period, the underemployment rate dropped by only one percentage point (from just over 6.7% to a low of 5.7%). This reflected an increase in the casualisation of the labour force (i.e. relatively more people being employed on a part-time or casual basis when compared to full-time employment), some of which was voluntary and some of which was involuntary. In this respect, the very low rate of unemployment achieved by Australia over the ‘boom’ period overstates the success of government efforts to achieve full employment. While the unemployment rate came down to very low levels of approximately 4% in 2008, there remained a relatively high underutilisation of labour, reflected in an underutilisation rate approaching 10% for the same period.

Chart 5.4 shows the correlation between unemployment, underemployment and underutilisation rates since 2008.

Chart 5.4 Unemployment, underemployment and underutilisation rates over last 10 years



It highlights that during the economic downturn over 2008-9, both the rates of unemployment and underemployment climbed to relatively high levels, before returning to lower levels between 2009 and 2011. Interestingly, the unemployment rate did not increase to the levels expected during the downturn because there was widespread evidence of businesses **'hoarding labour'**. Instead of 'sacking' workers, many businesses tended to reduce the hours of existing workers, which caused the underemployment/underutilisation rates to increase by more than the unemployment rate. For example, between May 2008 and November 2009, the unemployment rate increased from 4.3% to 5.2% while the underemployment rate increased from 6.0% to 7.8%. The gap between the unemployment and underemployment rate has further widened over recent years, from a gap of 1.9% in May 2014 to a gap of 2.9% in August 2018. This reflects the changing relationship between economic growth and labour market statistics and highlights the earlier point that a relatively higher underemployment rate in the economy makes the unemployment rate a less meaningful indicator of the state of the labour market and the achievement of full employment.

Study tip

*Time series statistics (such as those provided on this page) are provided throughout the text because a key skill in the Study Design is the requirement to 'explain trends in economic data'. However, students are not expected to remember statistics going back ten years. The Study Design only requires students to demonstrate an understanding of factors affecting the unemployment rate (and inflation/economic growth) 'over the past two years'. You will therefore need to supplement this text with contemporary statistics to ensure that you meet the requirements of the Study Design.*

The generally below-trend rates of economic growth over the past few years have created more part-time/casual jobs relative to full-time jobs (continued **casualisation of the labour force**), with more and more of the part-time or casual workers doing so involuntarily. For example, between May 2014 and August 2018, the proportion of all jobs that are part-time/casual rose from 30% to 32% (which means that the proportion of all jobs that are full-time fell from 70% to 68%). While there is indeed more employment in the economy, and a lower unemployment rate, more people have become underemployed and the underutilisation of labour has increased.

As economic growth accelerates in the future, it is expected that underemployment will fall more quickly than unemployment. This is because the demand for labour by many businesses will first be satisfied by the existing 'underutilised' workforce (e.g. asking workers to work more hours), which reduces underemployment and the underutilisation rate. If the economy continues to grow, the demand for labour will increasingly be satisfied by more workers, which then helps to reduce unemployment.

Overall, the underutilisation rate provides a better indicator of the state of the labour market. In particular, it provides a more accurate account of how changes in economic growth will, or have, impacted on both the demand for labour and spare capacity in labour markets.

## Relationship between participation and unemployment rates

When examining the relationship between the **participation rate** and the **unemployment rate**, it is necessary to focus on how a change in the participation rate can impact on the unemployment rate and then how a change in the unemployment rate can impact on the participation rate.

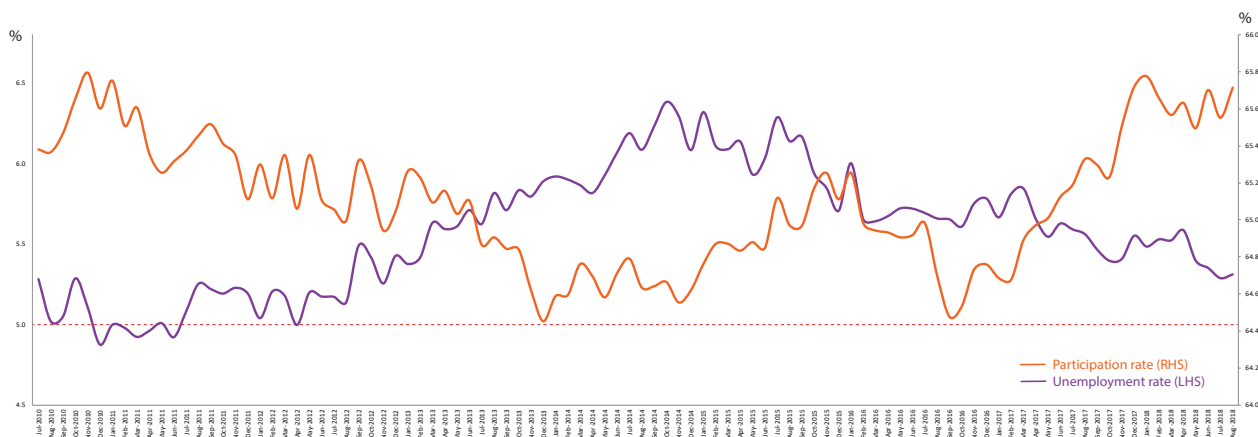
On the one hand, an increase in the participation rate is likely to cause a short-term increase in unemployment as the new job seekers (i.e. the new entrants to the labour market) are immediately classified as ‘unemployed’ until they find work. Over the longer term, however, a higher participation rate can lead to a reduction in the unemployment rate. This is because a higher participation rate usually reflects a growing labour force, which means that the **labour supply** increases, exerting downward pressure on wages (as there is greater competition for jobs) and/or upward pressure on **labour productivity** (as a bigger labour supply can force workers to increase effort). As a result, these factors can increase the demand for labour, creating additional employment and reducing the unemployment rate.



On the other hand, a decrease in the unemployment rate is likely to induce a rise in the participation rate. This is because some job seekers become encouraged about the prospects of finding work and enter the labour force. In other words, workers who were previously classified as ‘**discouraged job seekers**’ ( or **hidden unemployed**) are now more likely to seek employment as the likelihood of success is greater.

These relationships are highlighted in Chart 5.5 below.

Chart 5.5 Participation and unemployment rates since 2010 (seas adj)



With the economy in relative decline from 2011 following the end of the terms of trade boom (caused by falling prices received for key mineral exports), the unemployment rate trended up from below the NAIRU rate (approximately 5%) in late 2010 to as high as 6.4% in late 2014. As expected, the participation rate fell from 65.7% to 64.7% over the same period. While part of this change in the participation rate is due to demographics (an ageing population with people retiring and thus leaving the labour force voluntarily), it is also true that more workers became discouraged by higher unemployment rates, exiting the labour force as job prospects diminished.

However, since late 2014, the unemployment rate has trended down to a relatively low 5.3% in August 2018, while the participation rate has trended up to a very high 65.3% over the same period. This is in part related to the fall in the unemployment rate (as discouraged workers re-enter the labour market), but is also a result of deliberate attempts by governments to increase the size of the labour force via a number of policy initiatives such as increasing the retirement age, providing more subsidies for child care, subsidies to employers taking on older (50+) Australians, reforming some welfare payments (such as disability support pensions) to encourage entry to the workforce and continuing promotion of the skilled migration program (See recent Budgetary Policy initiatives in Chapter 9).

## Review questions 5.3

1. Distinguish the unemployment rate from the participation rate.
2. Define hidden unemployment and distinguish it from underemployment.
3. Explain why the existence of 'discouraged job seekers' makes 'unemployment' statistics misleading.
4. Define the underutilisation rate and explain the difference between underemployed and underutilised labour.
5. Explain what is likely to happen to the level of both hidden unemployment and underemployment when the economy experiences an economic downturn.
6. Explain why the unemployment rate did not rise as quickly as expected over the course of 2009 as the economy entered an economic downturn. In your answer, refer to changes in the rate of underemployment.
7. Explain why the rate of underemployment is likely to fall by a greater margin than the unemployment rate when the economy emerges from a downturn and is well into the recovery phase.
8. Define 'casualisation of the labour force' and outline how it can make unemployment statistics less relevant than the underutilisation rate.
9. Discuss how a large rise in the participation rate may impact on the unemployment rate. Distinguish the short and long term impacts.
10. Discuss how a large fall in the unemployment rate is likely to impact on the participation rate.
11. (a) From the labour force statistics for May 2018, calculate the following: the participation rate, the unemployment rate, underemployment rate, underutilisation rate

Labour Force Statistics May 2018	Original figures
Employed persons	12,584,821
Unemployed persons	702,643
Persons not in the labour force but of a working age (over 15)	6,936,761
Underemployed persons	1,103,973

- (b) Provide possible reason(s) for the changes in the unemployment and participation rates compared to the figures for May 2016 of 5.7% and 65.1% respectively.

### Activity 5c: Calculation exercise [Labour force statistics]

From the following hypothetical labour force statistics, complete the tasks below. (Show your calculations and beware - not all of the figures in the table are required for the answers!)

Labour Force statistics/data (hypothetical)	
Item/category	Numbers (000)
Population aged over 15	200,000
Labour force	150,000
Employed people full-time	100,000
Employed people part time and casual	35,000
Part time/casual workers wanting more work (included in the 35,000)	4,000
People who would love to work but have stopped looking	3,000
Unfilled vacancies	6,000
Unemployed people	15,000



**Questions/tasks:**

1. Calculate the unemployment rate.
2. Calculate the participation rate.
3. Calculate the underutilisation rate.
4. Calculate the number of people of a working age who are neither employed nor unemployed.
5. Identify the number of persons who are classified as 'hidden unemployed'.
6. Assume that the economy improves and all of those previously 'hidden unemployed' start to look for work. Calculate a new unemployment rate and participation rate.



### Activity 5d: True or False exercise [Labour force]

Answer true (T) or (F) to the following statements:

Statement	T	F
An increase in employment will always result in a decrease in the unemployment rate		
An increase in immigration will cause the participation rate to rise		
An increase in the pension age to 67 will cause the participation rate to fall		
Anne Teak, an experienced school teacher, injured her back at work after slipping on a wet path. She has been home recuperating for 5 weeks and is therefore unemployed		
The 'discouraged worker' effect refers to those workers in the workforce who are working below potential due to dissatisfaction with their job		
Unemployment will usually peak during a boom in economic activity		
Voluntary unpaid workers are considered employed for the purposes of the ABS		
An increase in the unemployment rate will most likely result in a lower participation rate		
Hidden unemployment and disguised unemployment are the same thing		
The underutilisation rate will usually be below the unemployment rate		

### Activity 5e: Classification exercise [Labour force]

Categorise each of the following persons as either employed (E), unemployed (U) or not part of the labour force (N).

Description	E	U	N
Syd Downen, a proud father of 7, has been desperately trying to find work and refuses to accept social security payments (e.g. unemployment benefits)			
Bill Loni is a full-time student who is looking for a part-time job			
Ima Hogg has been disciplined by his employer, Hungry Jack, for eating a few too many hamburgers during his shift. His hours have been reduced from 40 per month to two hours per month			
Anita Little is a 16 year old student who would like to leave school and get a job			
Amanda Lynn was the music teacher at Ding Dong College before taking stress leave due to repeated issues with her partner Al Coholic			
Horace Cope has decided to quit work and travel overseas with her best friend Chrystal Ball			
Dinah Mite is currently on strike from the Victorian police bomb squad in search of better wages and conditions			
Dick Tate is an English teacher at a private school who was promoted to the Commerce Faculty in search of greater prestige and the coolest faculty members			
Gladys Canby won Tattsлото with her friend Jack Pott and has simply not turned up to work for 3 months. Her American boss, Doris Shutt, has laid her off			
Joe King is a Melbourne comedian who has not had a gig for several months. He continues to seek gigs at local pubs in order to earn some money			
Jim Naysium works at the Fitness Centre for 2 hours per week without pay in order to gain some experience. He would dearly love to work more hours and be paid			
Myra Manes is a qualified funeral director who sent her final job application in the mail more than 3 months ago. She is fed up with trying to get a job as she considers that the job market is pretty much dead			

## 5.6 Causes and types of unemployment

When defining unemployment in Section 5.4 earlier, we introduced a number of different types of unemployment, such as **cyclical unemployment** and **structural unemployment**. In this section, we will examine in closer detail the causes of these, and other, types of unemployment. In general terms, there are two major causes of unemployment. First, unemployment that is caused by insufficient levels or growth in aggregate demand (cyclical unemployment). Second, unemployment caused by structural, seasonal, frictional and hard-core factors, which is often referred to as 'natural unemployment'.

### *Cyclical unemployment*

#### Aggregate demand (AD) revisited

As was discussed in detail in Chapter 4, AD measures the total spending on Australian made goods and services. It is worth recalling, here that the Australian Bureau of Statistics likes to break up aggregate demand into a number of components. This helps economists and researchers to isolate changes in spending patterns and the information can be used to develop policy initiatives. As was explained previously, the AD equation is:

$$AD = C + I + G + X - M$$

<b>C</b>	<b>=</b>	<b>Consumption demand</b>
<b>I</b>	<b>=</b>	<b>Investment demand</b>
<b>G</b>	<b>=</b>	<b>Government demand</b>
<b>X</b>	<b>=</b>	<b>Exports</b>
<b>M</b>	<b>=</b>	<b>Imports</b>

#### What is the relationship between a lack of aggregate demand and unemployment?

As discussed earlier, the demand for labour is considered a derived demand because it is derived from the demand for goods and services. Therefore a fall in AD, or slow growth in AD, will typically mean that production targets for future periods will be reduced. Lower sales and provision of services will mean that producers will need less labour in the production process. As a result, the lack of AD will cause **cyclical unemployment**. In other words, the demand for labour will fall and, given that wages are unlikely to fall, there will be a surplus of labour in the market, which causes unemployment.

John Maynard Keynes, author of *The Means to Prosperity* and *The General Theory of Employment, Interest and Money*, suggested that the effects of a decrease in demand in one section of the economy could have ripple effects through the rest of the economy. [This was explained in detail in Chapter 4.] He described this as the **multiplier effect**, which can be both positive and negative. If there is a decrease in **consumer confidence** for example, households may choose to save a greater portion of their income because they are concerned about their future employment prospects. In doing so, their spending on goods and services will decrease. Shopkeepers and the providers of services will notice a decline in business activity and look to reduce production levels. This will lead to a decrease in the derived demand for labour and should result in an increase in the unemployment rate and/or a decrease in the number of hours worked. As a result, disposable incomes are likely to fall which will initiate another round of decreased spending, and the initial effect is multiplied throughout different sectors of the economy.

**Cyclical unemployment** is generally associated with economic downturns which are part of the **business cycle** (see Chapter 4). The most extreme example of this occurs during a depression (such as the Great Depression in 1929). During these periods, confidence and AD decrease significantly and the unemployment rate rises sharply. Unemployment during the Great Depression was estimated to be 30%. During the recession of the early 1990s, it was 11% and the global financial crisis (2008-9) resulted in an increase in the unemployment rate to 5.9%. It is worth noting, however, that the labour force underutilisation rate was much higher, at an estimated 13.6%, indicating that the decrease in AD did have a negative effect on the demand for labour and unemployment/underemployment during this period.

## What might cause aggregate demand to decrease?

There are a range of demand-side factors that can cause aggregate demand to fall. Some of them are influenced by the government and others are outside the government's control. Government policy responses to unemployment will be discussed from Chapter 8. Some common AD and AS factors affecting AD were covered in a theoretical setting in Chapter 4 and the impact that these factors have had on the unemployment rate over the past two years will be examined in Chapter 6. However, it is worth focusing on a few key factors that impact on cyclical unemployment.

### Consumer confidence (sentiment)

Consumer confidence aims to measure the general feeling of positivity or negativity about the future state of the economy. Households will tune into the information contained in the media and make an assessment about their future employment prospects and whether they are likely to gain a pay rise. If sentiment decreases this means that consumers may become more cautious with their income. It is reasonable to expect that during periods of low consumer confidence that households will save a greater portion of their income and be less willing to take on new debt. As a result the demand for goods and services decreases, and, as explained above, as AD decreases, cyclical unemployment can increase.

### Economic growth in our major trading partners

Between 20% and 25% of Australia's AD is determined by the incomes and purchasing habits of foreign nations. If a **major trading partner** such as China had a reduction in its rate of economic growth, this means that the growth in demand for Australian exports would also decrease. China's growth has been one of the major reasons why the mining sector in Australia expanded at such a rapid rate. That also meant that incomes from mining have increased and this increase in incomes flowed into other sectors in the economy via the multiplier effect. As explained earlier, as AD increases, this can cause cyclical unemployment to decrease.

### Interest rates

Interest rates represent the rewards from lending (saving) and the costs of borrowing. Indebted households are very sensitive to changes in interest rates. Most households have home loans with variable interest rates, which essentially means that the interest rate charged by their lending institution can change at any time. When interest rates increase, the indebted households must pay more back to the bank in interest and as a result the amount of money they have left over after paying their bills has decreased. This amount left over is sometimes called **discretionary income**. A decrease in discretionary income is likely to lead to a decrease in spending on goods and services. Interest rates in Australia can be influenced by the Reserve Bank of Australia's monthly board meeting (where the cash rate is determined) and by the banks themselves (who take into account the cost of the money they acquire to lend to households and businesses). An increase in interest rates can therefore have a negative effect on cyclical unemployment because it can reduce spending, leading to a decrease in the demand for labour.

### The exchange rate

The exchange rate will have an influence on the demand for Australian-made goods and services because it affects relative prices. Whenever an Australian business sells a good or service they generally want to be paid in Australian dollars. An appreciation of the Australian dollar will mean that foreigners will need more of their currency to obtain each Australian dollar. Therefore, the demand for Australian products will therefore decrease as they become relatively more expensive when compared to foreign made goods and services. This could mean a decrease in the demand for exports and/or an increase in demand of imports to replace the Australian-made products which are now relatively more expensive. For example, a high **Australian dollar** reduces the incentive for foreigners to visit Australia for a holiday and at the same time it encourages more consumers to use the Internet to buy their products from cheaper overseas suppliers online. This will reduce the AD and lead to greater cyclical unemployment.



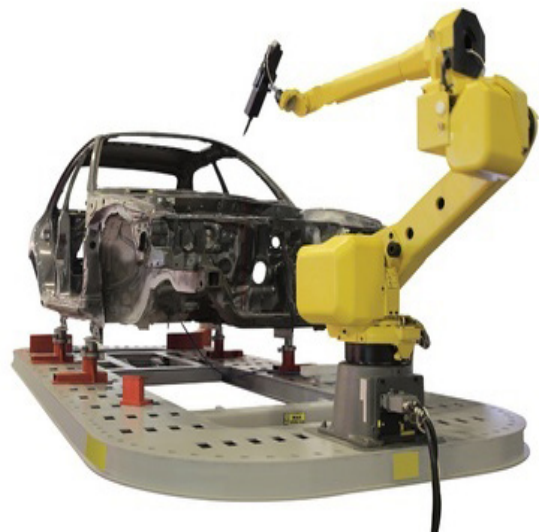
## Natural unemployment

As discussed earlier, there will continue to be unemployment even during times of strong AD, when there is an absence of cyclical unemployment. This 'natural' unemployment arises in the economy due to structural, seasonal, frictional and hard-core factors.

### *Unemployment caused by structural changes - structural unemployment*

There can still be a relatively high unemployment rate even when there is strong demand in the economy. Prior to the global financial crisis, the Australian economy experienced 17 years of positive, uninterrupted economic growth and the unemployment rate fell to as low as 4% in early 2008. This is a very low rate of unemployment, but at the time there were still approximately half a million Australians who could not find work. The existence of **structural unemployment** helps to explain why it was very hard for the unemployment rate to be reduced any further.

During the long economic boom, there were many jobs available but those who were unemployed did not have the skills to fill the vacant positions. Generally speaking, structural unemployment is caused by a mismatch between the skills set of the unemployed and the skills that are needed in the economy. It can be caused by a range of factors including those factors listed below.



- The implementation of new **capital and technology** which render the skills of some workers obsolete. Over time, many occupations have disappeared because inventors have created capital which can complete the work more efficiently (and cheaper) than labour resources. For example, robotics caused structural unemployment in the motor vehicle manufacturing sector; ATMs and internet banking may have caused structural unemployment in the banking industry; and self-serve checkouts may cause structural unemployment in the supermarket industry in years to come.
- Changing patterns of demand occur as **tastes and fashion** change. This means that demand for some goods and services may fall while others increase. The problem is that the change in demand doesn't necessarily mean that those whose jobs are no longer required can move straight into working somewhere else. Retraining may be necessary and this will take time, and in some cases the person may be too old or unable to undertake the training, or the training may not be provided or available. For example, the decline in physical CD sales due to legal and illegal downloading of music may have caused structural unemployment in the music industry, and the preference for online over traditional store retailing may cause structural unemployment in the retail sector.
- **Outsourcing** may cause structural unemployment, especially if businesses relocate their core practices to another country. This has been particularly evident in the Australian manufacturing sector. Many jobs in the textile, clothing and footwear sectors have disappeared as firms have looked to remain competitive. They have sent contracts for the production of their goods to businesses in China who have access to cheap and abundant labour resources. Those with skills in this area therefore become structurally unemployed. Similarly, firms have looked to reduce some of the costs associated with providing services such as call centres by contracting the work out to suppliers in India.
- Structural unemployment can also be caused by **business restructuring** that ordinarily occurs in a dynamic capitalist economy like Australia's. Businesses will continually search for better or more efficient ways of producing goods and services in order to reduce costs, and this can sometimes be at the expense of workers. For example, during the 1990s, a number of companies downsized their workforces and many middle managers became redundant. Instead, many companies chose to hire consultants rather than have permanent employees.
- Some government **microeconomic reform policies** may also cause short-term structural unemployment. Privatisation during the 1990s was associated with the restructuring of firms and trade liberalisation was associated with decreasing demand and company restructure. Both of these reforms may have contributed to the structural unemployment in the nation, and hence the existence of jobless growth.

### Frictional unemployment

Economists don't worry too much about frictional unemployment. It is caused when a person has left or finished a job and has yet to find a new job. In some ways it can be seen as the product of an efficient economy, as workers are seeking better opportunities in growing industries. Frictional unemployment can also be common for those in the construction industry whose employment may be disjointed because it is project based. Contractors may also experience short periods of frictional unemployment when they are between jobs.

### Seasonal unemployment

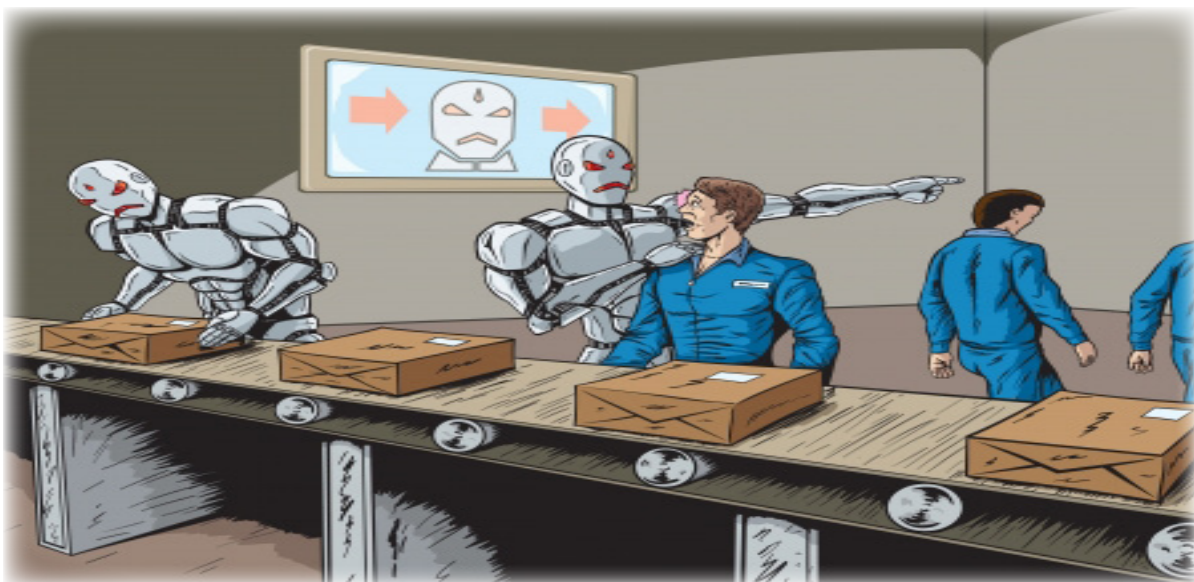
Seasonal unemployment occurs for those workers whose skills are not in demand at certain times of the year. There are certain professions where economic activity is limited to a period of the year, and therefore for the rest of the year they may be unemployed. Therefore, seasonal unemployment may affect fruit pickers, ski-instructors and tourist operators. Seasonal unemployment can also increase at the end of the school/university year as there is an influx of graduates who are all looking for work simultaneously.

### Hard-core unemployment

Hard-core unemployment is generally caused by individual characteristics of the unemployed person. Some extreme commentators have labelled people in this category as unemployable. For some this could be true. Hard core unemployment could therefore be caused by a criminal record, a drug addiction, a mental illness, a physical disability or lack of desire to genuinely seek work. This final characteristic may result in people registered for Centrelink benefits looking for jobs they know they won't get in order to meet Centrelink requirements that they actively seek work in order to retain their benefit.

## Review questions 5.4

1. Define aggregate demand (AD) and in your answer summarise the key components of AD.
2. Explain how a reduction in AD is related to cyclical unemployment. In your answer, refer to the multiplier effect.
3. Describe the relationship between the business cycle and cyclical unemployment.
4. Explain how each of the following can contribute to an increase in cyclical unemployment. In your answer refer to the key component(s) of AD that are affected:
  - lower consumer confidence
  - weak growth in our major trading partners
  - higher interest rates
  - higher exchange rate
5. Explain why unemployment can still exist in an economy despite periods of strong rates of economic growth. In your answer refer to natural unemployment.
6. Describe five factors that can account for the existence of structural unemployment in Australia.
7. Distinguish structural unemployment from hard-core unemployment.
8. Distinguish seasonal unemployment from frictional unemployment.



### Activity 5f: Types of unemployment

Identify the type of unemployment applicable to each situation below. You must select from Cyclical (C), Structural (S), Seasonal (SL), Frictional (F), Hard Core (HC) as well as Hidden(HD) and Disguised unemployment (D).



Description	C	S	SL	F	HC	HD	D
Gary is a sheep farmer and shearer but is finding it very difficult to get shearing work since synthetic materials are now in such high demand compared with wool.							
Rommy works as a ski instructor at Mt Hotham each year. However, at present it is summer and there is no snow.							
Peter loves travelling around Australia with his mates in his van. He is not keen to work and doesn't see the point of people getting stressed over working long hours and receiving average pay. He would rather live on unemployment benefits.							
Due to the global financial crisis (GFC), the firm Cam works for lost profits due to falling demand and falling consumer confidence. It has had to downsize and Cam lost his job.							
Louisa works for a government business enterprise (GBE) that has just been privatised. The company will retrench many workers and Louisa will lose her job.							
Barbara is an accountant and after 10 years with one major accounting firm, she has left to look for work with another accounting firm. She has been looking for work for four weeks.							
With the Australian dollar appreciating so much, the domestic tourism industry has been hard hit and Marnie has lost her job in the hospitality industry.							
Juanita is a shearer but now that the shearing season is over, he has no work.							
John worked for a car parts company but due to lower tariffs on imported cars and less government subsidies to domestic car companies, the company he works for will close and he will not have a job.							
Monique is an alcoholic and despite having some work on and off, she finds it difficult to keep jobs.							
Yasmina works for a firm that has invested a lot of money in automating its assembly line, and, as a consequence, he has lost his factory job and is no longer needed on the factory floor.							
Dusty has been working part-time as a cabaret singer but would like a full-time job as a wedding singer							
Phuong has been at home for seven years raising a young family. Now that all of her children are at school, she is keen to re-enter the workforce and earn extra income for her family. She has applied for a few jobs, unsuccessfully, but is actively looking for work, including having her name listed with a recruitment company.							
Isabella is a professional lifesaver and during the summer she is always very busy with her work. At present it is winter.							
High interest rates in Australia have had a negative impact on business costs. As a result, Frida's firm sacked her.							
George has a criminal conviction and has spent time in jail. With a limited education and a criminal record, he finds it hard to get work.							
Isa works for a well-known shoe-manufacturing business, but due to the company's inability to compete with cheap imports from China, the business must close and she will be unemployed.							

## 5.7 The consequences of unemployment

### Loss of gross domestic product (GDP)

The pursuit of full employment helps to avoid the real economic losses associated with unemployment in terms of **lost production or output**. With greater employment and lower unemployment, there are **multiplier benefits** to the economy in terms of higher incomes earned being spent on goods and services which then creates additional employment opportunities and income generation over time. In this respect, high unemployment makes it more difficult to achieve strong rates of economic growth that are necessary to achieve growth in (material) living standards over time, as measured by real GDP (or real GDI) per capita.

Unemployment also means that valuable labour resources are not being utilised in the production process and therefore the country is not operating at its productive capacity. Accordingly, as the unemployment rate grows, particularly **long term** or structural unemployment, the loss of skills over time will have negative supply side effects on the economy. Those unemployed will simply be unable to contribute to the economy.

While high unemployment rates will result in costs to the economy, it is also true that some unemployment can result in offsetting supply side benefits that help to minimise the net losses associated with high unemployment rates. Higher unemployment rates will be associated with low **job vacancy** rates because the demand for labour will be relatively low and excess supply of labour will exist across many industries and occupations. This can both increase labour productivity levels, because workers know there is a greater risk of dismissal, and reduce wage costs, as some workers will accept a lower wage to gain employment.

The combined effect is to reduce **real unit labour costs** for businesses, which helps to reduce prices (or inflation), boost competitiveness and stimulate both AD and real GDP. Similarly, firms will tend to face reduced wage demands from workers (and their unions) who have less economic bargaining strength when unemployment rates are high. These influences are likely to result in less **industrial disputation** (e.g. fewer strikes) and higher productivity, once more triggering inflationary pressure and causing longer term damage to the Australian economy.



### Loss of tax revenue

Higher unemployment rates will also have a negative impact on the **government's budget** (see Chapter 8) as fewer people will be paying income tax. Given that individual income tax receipts are the major source of total government revenue (approximately 50% of all government cash receipts) it means that the government will have less money to fund the provision of a host of government provided goods and services that support Australian living standards. For example, the government will have less to spend on services such as education, health, defence and national security which all help to improve the living standards of other Australians. In addition, the government will be required to spend more on welfare or income support as unemployment numbers rise. If the government chooses to maintain expenditure at previous levels, the loss of tax revenue necessarily results in a bigger budget deficit (or smaller surplus) unless the government decides to raise tax rates. These measures will tend to have negative effects on economic growth and further compromise living standards because higher deficits result in more government debt which negatively impacts on the government's interest burden as well as interest rates in the economy more generally (see Chapter 8).

#### Study tip

*A rise in the unemployment rate, and particularly those who are long term unemployed, is likely to increase government expenditure on transfer payments. However, it is important to understand that while transfer payments (broadly known as 'welfare') make up a significant proportion of government budgetary expenditure, the payments received by those who are unemployed, called Newstart, account for a relatively small proportion of total welfare spending.*

## Greater income inequality

High rates of unemployment will tend to increase **income inequality** and increase the incidence of **poverty**. More people will be relying on welfare, receiving government transfer payments instead of factor incomes, which means that the lowest income earners in society will be receiving a smaller share of the total income earned in Australia. In other words, the gap between high and low income earners will widen. In addition, more people are likely to be placed in a position where they will be unable to afford the goods and services to give them a reasonably decent or dignified standard of living.

## Reductions in living standards

Ultimately, high rates of unemployment reduce **living standards** of Australians on a number of levels. As people move from being employed to becoming unemployed, their income more than halves and they therefore have a reduced capacity to purchase goods and services. In this respect, unemployment reduces **material living standards** and diminishes the economic prosperity and welfare of Australians. To illustrate, an individual working 38 hours per week should receive a **minimum wage** of \$719.20 (the federal minimum wage), which equates to \$37,398 per year before tax. While this is not a large sum of money, it should enable the worker to enjoy a reasonably dignified standard of living. However, should this worker become unemployed, his or her weekly income will fall to approximately \$272.90 per week (or \$14,191 per annum), which is the current rate for a single person receiving a Newstart Allowance (i.e. unemployment benefit). This should significantly reduce their material living standards as they can purchase far fewer goods and services.



Higher unemployment (or reductions in employment) will also tend to reduce the quality of life or **non-material living standards** of those becoming unemployed. These people could be faced with the stigma that is often associated with being unemployed and will also miss out on the many non-pecuniary benefits that employment brings. This includes an improved sense of connection to the community and a higher self-esteem or self-worth. In addition, the longer the person becomes unemployed the more likely it is they will lose their skills, and this perpetuates the problems associated with being unemployed because people find it harder to become readily employable. This means that the effects of long term unemployment are even more negative for a person's overall standard of living than periods of short term unemployment.

There are a host of other **social costs** that can be related to high rates of unemployment. This includes the possibility of more crime, social exclusion and homelessness, as well as an increased incidence of psychological harm and general ill health that is more common in those who are unemployed, particularly for long periods. The enormous impact of unemployment on the individual is considered in detail in Activity 5g. Living standards will also be negatively affected by those factors referred to earlier. In particular, the loss of tax revenue and the impact on the government's ability to provide services as well as the greater income inequality and the negative impact this could have on social cohesion.

## Review questions 5.5

1. Explain how high rates of unemployment can have a negative impact on real GDP. In your answer refer to aggregate supply and/or productive capacity.
2. Explain how high rates of unemployment can also provide some positive supply side benefits to the economy. In your answer refer to productivity and labour costs.
3. Outline why high rates of unemployment are likely to result in significant reductions in the government's tax revenue and explain how this can negatively impact on living standards. In your answer refer to the government's budget deficit and the level of government debt.
4. Explain how high rates of unemployment can contribute to income inequality and/or poverty.
5. Describe one way that high rates of unemployment can reduce material living standards.
6. Describe one way that high rates of unemployment can reduce non-material living standards or the 'quality of life' enjoyed by Australians.



## Activity 5g: The mental health impact of unemployment

This is an edited extract from Chapter 2 of a report produced by a House of Representatives committee titled 'An inquiry into issues specific to mature-age workers'.

The psychological and social costs of prolonged unemployment during the productive years of life impact harshly on the quality of life of affected individuals and families. Experiences of low self-esteem and loss of self identity impact on physical and mental health and can extend to broader consequences of social isolation and the loss of social networks and support. The impact of redundancy causes family disruption and breakdown. At the very least it reduces people's sense of membership and contribution to the life of the community.

'For 11 years I have been working directly with unemployed people at the grassroots level in training and case management. I have seen, heard and felt the human misery and suffering that unemployment has inflicted upon people...I have seen how this savage impact can foster suicidal tendencies, marriage breakdowns, drug and alcohol abuse and much more that will never be disclosed.' (K. Boyne, South East New South Wales Area Consultative Committee)



Loss of self-esteem and confidence resulting from job loss can operate as barriers to re-employment. For many people, work provides a social network and often a reason for social interaction. Loss of income also limits the ability of people to attend social outings.

Mission Australia argued that one of the serious consequences of isolation from the workforce is that it reduces prospects for re-employment. Contact through social networks is a very important means of finding out about available jobs. A further consequence is a loss of social standing that increases the sense of isolation and alienation experienced through no longer being part of the workforce. Terms such as 'dole bludger' abound so that not only is a person's self image negative, it is reflected back at them via the media and society in general...they are seen as being a burden on taxpayers.

There is a strong feeling among mature-age people that once they no longer have paid employment, they begin to become invisible. Work was reported as being important for mental stimulation, in providing social contact for those with limited family networks and as a means of structuring time. Loss of employment also results in people losing a sense of being in control of their destiny.

Overall, unemployment is often psychologically and financially devastating for those who experience it and for those who are dependent upon them. There is substantial evidence of the negative health effects, not only for the unemployed person but also for his or her family.

Source: [http://www.aph.gov.au/Parliamentary\\_Business/Committees/House\\_of\\_representatives\\_Committees?url=ewr/owk/report/chapter2.pdf](http://www.aph.gov.au/Parliamentary_Business/Committees/House_of_representatives_Committees?url=ewr/owk/report/chapter2.pdf).

### Questions

1. Define the term redundancy and explain how it may contribute to family disruption and breakdown.
2. Describe the possible link between unemployment and alcohol/drug abuse.
3. Outline the possible link between unemployment and self-esteem.
4. Explain how the loss of self-esteem can act as a barrier to re-employment.
5. Explain how isolation from the workforce reduces the prospects for re-employment.
6. 'Unemployed people are dole bludgers and a burden on taxpayers.' Discuss the validity of this statement.
7. Explain how loss of employment can result in 'people losing a sense of being in control of their destiny'.



## 5.8 Low inflation and price stability

Prices of goods and services will be changing on a regular basis in a modern market capitalist economy like Australia's. Some prices fall over certain time periods for a number of reasons, such as the improvement in technology that has seen the price of motor vehicles, computers, telecommunications equipment and electronics all fall over the past 10 years. Conversely, other prices increase over time for a variety of reasons that will be explored soon. **Inflation** occurs when the price rises outweigh the price falls to deliver an increase in 'average prices', or a sustained increase in the general or average price level over time.

*'Inflation refers to a sustained increase in the general or average price level over time'*

The Reserve Bank of Australia (RBA) is the government body with the primary responsibility for achieving '**stability of the Australian currency**'. This means that the RBA tries to ensure that Australia has a stable value of the dollar in terms of its purchasing power over goods and services. This is commonly referred to as the RBA's goal to achieve a low rate of inflation, also referred to as **price stability**.



The RBA's specific inflation target is to contain the increase in '**consumer price inflation**' to 2-3% on average over time, where consumer price inflation represents the rate of inflation as it applies to Australian consumers. It therefore excludes 'producer price inflation' (inflation as it relates to business costs) and it is commonly measured by the **Consumer Price Index (CPI)**.

### Why does the RBA target 2-3% growth in consumer price inflation?

The Australian Government is keen to avoid the economic costs associated with a high inflation rate, as these costs are ultimately borne by all Australians. Accordingly, the RBA focuses primarily on the prices faced by consumers of goods and services. It targets a range for inflation (on average over the economic cycle) because it provides the RBA with the flexibility to shift its focus away from inflation (and allow it to climb towards 3%) in an effort to achieve higher economic and employment growth. This flexibility is required for **monetary policy** to properly operate within its charter and act as a key stabilisation policy of government. A range for inflation of 2-3% also provides a more realistic target that allows for national variations in the rate of inflation over time.

### Why not target an inflation rate of zero?

There are three main factors preventing the RBA targeting an inflation rate of zero.

1. Small amounts of inflation actually allow for reductions in the '**real**' prices of some goods and services (particularly labour services) without a reduction the '**nominal**' price (e.g. the nominal wage). For example, during a recession it may be necessary for some wages to decrease as demand for labour falls. However, wages are generally 'downwardly rigid' in nominal terms, thereby causing some unemployment. This means that if the economy is experiencing some inflation, the real wage can reduce without a reduction in the nominal wage.
2. Some inflation is really accounted for by rising quality of goods and services, which may not be fully captured in CPI figures. (Hence, CPI is said to overstate the extent of inflation.) For example, inflation of 4% for a year is less of a problem if the average quality of goods and services increased by 4% over the period and the ABS was not able to accurately account for these quality improvements in its calculations.
3. It may create other economic problems like growth rates that are too low, increases in unemployment and/or even **deflation**.

#### Study tip

*While stability of the Australian exchange rate is a goal of policy more generally, reference to 'currency' in the current context means 'prices'. It does not mean that the RBA's primary aim is to ensure that the exchange rate is stable.*

### Deflation versus disinflation

**Deflation** is the opposite of inflation. It refers to a sustained decrease in the general or average price level, which means that prices on average are falling. While it occurs relatively infrequently in Australia, the first three months of 2016 was the last time that Australia experienced a period where average prices fell (by 0.2%). Deflation is distinct from **disinflation**, which refers to a fall in the rate of inflation. For example, between March 2017 and March 2018, the annual rate of inflation fell from 2.1% to 1.9%. This means that prices on average still rose over this period (i.e. inflation still occurred), it's just that prices did not rise as rapidly over 2018 compared to 2017.

Deflation can be damaging to an economy and employment because many people delay their purchasing decisions because goods and services will cost less in future. For example, a consumer might be thinking about taking a holiday within Australia but might delay the trip because they anticipate that it will cost less to travel in a year or two's time. This reduces consumption and production and has negative implications for employment, incomes and living standards.

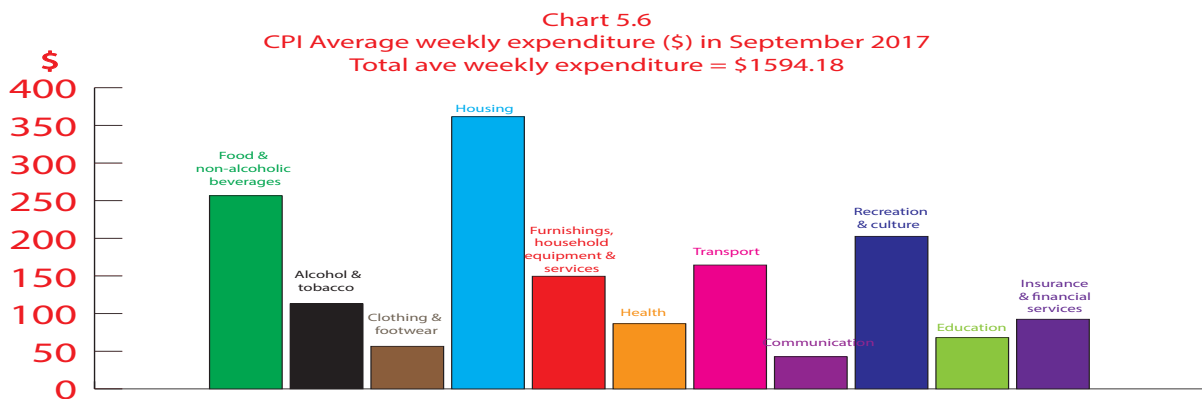
### Review questions 5.6

1. Define the term inflation.
2. Define the RBA's inflation goal.
3. Explain why the RBA does not have a rigid inflation target (such as 2% per year).
4. Outline the problems associated with having an inflation target of zero percent.
5. Discuss why deflation is an undesirable outcome for an economy.
6. Explain the difference between deflation and disinflation.

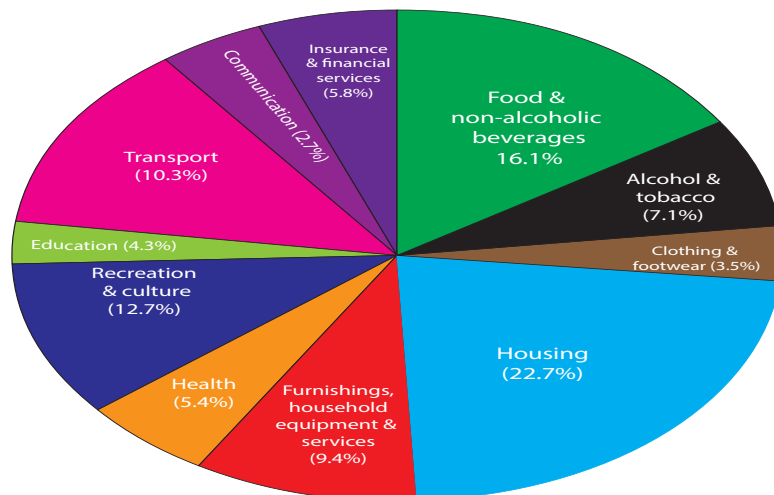
## 5.9 Measurement of inflation - the Consumer Price Index (CPI)

The Federal Government requires a reliable indicator for inflation, given that many economic policy decisions are influenced by inflation outcomes. The **Consumer Price Index (CPI)** is the best and most reliable indicator of consumer price inflation. It is calculated by the Australian Bureau of Statistics on a quarterly basis to determine the change in the prices of goods and services purchased by the average Australian household. It does this by collecting approximately 100,000 prices of more than 1,000 goods and services that are purchased by private households in the eight Australian capital cities, where these make up approximately two-thirds of the Australian population. This is called the **'basket'** (and is sometimes called the **'regimen'**). Each of these goods and services is then categorised into eleven larger groups before being further categorised into sub-groups. **Weightings** are then attached to each group (and sub-group) to reflect their relative importance to the typical Australian household. This is done to ensure that any price change more accurately reflects the impact of price changes on the average household.

Charts 5.6 and 5.7 reveal that in 2017, households on average spent \$1,594.18 per week on goods and services. The expenditure group of 'Housing' was shown to be the most significant expenditure category, accounting for 22.7% (\$361.49) of the average household spending of \$1,594.18. The relatively high weight for Housing means that a 10% increase in housing costs (such as rent and other occupancy costs) will have a much larger impact on the overall CPI (and therefore the average price level) than a 10% increase in the price of education (since the 'Education' category has a relatively low weighting of 4.3%, which equates to \$68.05 per week).



**Chart 5.7**  
CPI Weights (percentage of total expenditure) in September 2017



## Why use an index number to calculate inflation?

Index numbers are used by statisticians to provide a meaningful way to record movements in the price or value of items that are quite diverse in nature. Without the use of an index, it would be too difficult for the ABS to calculate an average price of goods and services when we have such a wide range of goods and services, such as fridges, cars, cigarettes, petrol, light globes, milk, etc.

Once all prices are gathered and categorised they are ultimately converted into one index number for each quarter which represents the 'average price' of goods and services compared to a particular 'base period' (this is set at 100.0). An index number on its own is meaningless. It needs to be compared to the base year index number or the index number from a previous period to provide the rate of growth in the CPI (or inflation). For example, the CPI for the June quarter 2018 was 113.0 compared to a base year figure of 100. The number 113.0 means nothing in isolation. However, when compared to the base year (which is 2011-12) it highlights that average prices have increased by 13% since then.

It is standard practice to calculate and report inflation rates for the most recent quarter or year, which requires a comparison of the index number in the latest period to the index number in the previous quarter (or year). This is achieved by using the following formula, which calculates the rate of inflation between June 2017 (when the CPI was 110.7) and June 2018 (when the CPI was 113.0):

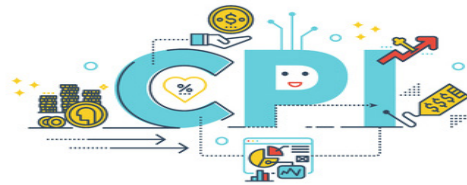
$$\begin{aligned} \text{Annual inflation rate (June 2018)} &= \frac{113.0 - 110.7}{110.7} \times 100 \\ &= 2.1\% \end{aligned}$$

## Calculating the rates of inflation from index numbers

The **quarterly rate of inflation** is calculated by using the index numbers for two particular quarters and determining the rate of growth between these quarters. For example, using the CPI numbers in Table 5.2 reveals that the rate of inflation in the June quarter 2018 is 0.36%. This is derived in the following way:

$$\begin{aligned} \text{Quarterly inflation rate (June 2018)} &= \frac{113.0 - 112.6}{112.6} \times 100 \\ &= 0.36\% \end{aligned}$$

Jun-2017	110.7
Sep-2017	111.4
Dec-2017	112.1
Mar-2018	112.6
Jun-2018	113.0



The **annualised rate of inflation** for the June quarter 2018 is easily determined by multiplying the quarterly figure by four. For the June quarter of 2018, the annualised rate of inflation was therefore 1.4%. This clearly indicates that inflationary pressures in the June quarter were very low, with inflation well below the RBA's target rate of inflation of 2-3%.

$$\begin{aligned} \text{Annualised inflation rate} &= \text{Quarterly inflation rate} \times 4 \\ &= 0.36 \times 4 \\ &= 1.44\% \end{aligned}$$

The **annual rate of inflation** for the year to end June 2018 is calculated by using the index numbers for the June quarter of both 2018 and 2017 and once more determining the rate of growth between these index numbers. For example:

$$\begin{aligned} \text{Annual inflation rate (June 2018)} &= \frac{113.0 - 110.7}{110.7} \times 100 \\ &= 2.1\% \end{aligned}$$

## Variations of the CPI – headline and underlying rates

The inflation rates calculated above are referred to as the headline rate of inflation. This means that they capture the price movements of all goods and services contained in the CPI. Accordingly, the 2.1% inflation rate for the year to end June 2018 refers to the **'headline rate of inflation'**, or simply **'headline inflation'**.

Governments will also seek to gain a picture of the underlying inflationary pressures that exist in the economy in order to assist in policy formulation. The ABS and RBA produce a set of inflation statistics that are derived from the original CPI, but exclude various prices in order to arrive at an **'underlying rate of inflation'**. This is sometimes referred to as the **'core rate of inflation'** and will be particularly important for the RBA when deliberating on changes to monetary policy settings (see Chapter 10).

The two main underlying or core measures of inflation are the **trimmed mean** and **weighted median** series. The trimmed mean is the most commonly used underlying measure and starts with the headline CPI before removing (or trimming away) the 15% of items whose prices increased the most and the 15% of items whose prices increased the least (or even decreased). The trimmed mean therefore includes the price changes of the middle 70% of the goods and services whose prices changed over the relevant period. The weighted median involves using the price change that sits in the middle of the range (referred to as the 50th percentile), such that large price increases or decreases do not influence this measure of inflation.

The RBA and ABS also calculate an inflation figure based on the normal CPI but excluding the 'volatile items' of fruit and vegetables and fuel. This underlying measure is referred to as the **'CPI all groups excluding volatile items'** and will be below the CPI headline rate when the prices of these volatile items are rising and will be higher than the headline rate when these volatile prices are falling.

For the year ending 30 June 2018, the inflation rates for each measure were as follows:

<b>CPI Headline</b>	<b>2.1</b>
<b>RBA underlying (trimmed mean)</b>	<b>1.9</b>
<b>RBA underlying (weighted median)</b>	<b>1.9</b>
<b>CPI all groups excluding volatile items</b>	<b>1.8</b>

The most recent difference between the annual headline rate and the underlying rates over the year to end June 2018 was due largely to rising fuel prices (6.9%) and tobacco (3.8%) which were excluded from the underlying measures and therefore only impacted on the headline rate. The major divergences between the headline and underlying (trimmed mean) rates of inflation since March 2011 are summarised in Chart 5.8.

Chart 5.8: Headline vs underlying rates of inflation



### Other measures of inflation

While the CPI is the most common measure of inflation, other price indexes are also calculated by the ABS. The most notable of these are the **Producer Price Index**, the **Wage Price Index**, the **terms of trade index** (made up of the export price index divided by the import price index), the **House Price Index** and the **Pensioner and Beneficiary Living Cost Index (PBLCI)**. These provide additional information about price pressures in the economy and can assist governments in their deliberations on economic policy. For example, the PBLCI measures price increases specifically affecting pensioners and enables the government to more appropriately index pensions over time to ensure that their purchasing power is not eroded.

### Review questions 5.7

1. Provide a general outline of how the CPI is used to provide a measure of inflation.
2. Distinguish an **annualised** inflation rate from an **annual** inflation rate.
3. Distinguish an **annualised** inflation rate from a quarterly inflation rate.
4. Distinguish between the headline and the underlying inflation rates.
5. Distinguish the RBA's trimmed mean from the weighted median as measures of underlying inflation.
6. Discuss how a large increase in the price of fruit and vegetables is likely to impact on both the headline and underlying rates of inflation.
7. Using Chart 5.8, provide an example of when the headline rate of inflation exceeded the underlying rate of inflation and provide a reason for the difference.
8. Using Chart 5.8, provide an example of when the underlying rate of inflation exceeded the headline rate of inflation and provide a reason for the difference.

### Activity 5h: Inflation, deflation or disinflation?

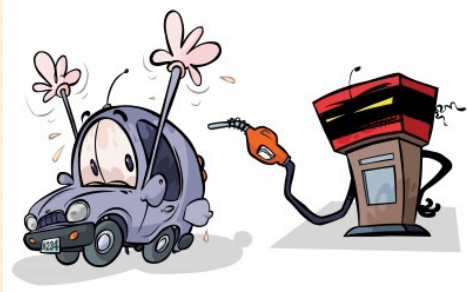
For each of the following scenarios, determine which of the following has occurred: inflation (A), disinflation (B), deflation (C) or neither A, B or C (D) Place a tick in the most relevant box. Note that in some cases, more than one box can be ticked.



Scenario	(A) Inflation	(B) Disinflation	(C) Deflation	(D) Neither A, B or C
Most prices increase for two days before returning to their previous level				
Prices on average increased by 3% in the past year compared to only 1% the year before				
The prices of houses, cars, electrical goods, airfares, food, clothing, education increase by 3% on average				
Average prices fall by 2% over the course of the year				
Average prices rise and then fall by the same amount over the course of the year				
Apple Inc. announce that the price of the new iPhone7 will be 3% higher than the old version				
The price of labour (e.g. wages) increases by 1% over the course of the current year				
School fees have fallen by 1% at a prestigious Melbourne private school				
Prices of a few goods fell, but most prices rose				
The price of a box of Kellogg's Cornflakes increases by 2%				

## Activity 5i: CPI result for June quarter 2018

The table below summarises the CPI results for the June quarter 2018. It highlights the variability in price changes across the 11 expenditure categories, with the largest annual increase in prices being recorded by the alcohol and tobacco category and price falls for categories such as communication, clothing + footwear and furnishings/household equipment/services. Using this information, and the table/pictures below, answer the questions that follow.



June quarter 2018 inflation results (www.abs.gov.au Cat 6401.0)		
	Mar Qtr 2018 to June Qtr 2018	June Qtr 2017 to June Qtr 2018
Weighted average of eight capital cities	% change	% change
Food and non-alcoholic beverages	-0.4	0.3
Alcohol and tobacco	1.6	7.8
Clothing and footwear	1.3	-2.0
Housing	0.2	3.1
Furnishings/household equipment/services	0.3	-0.5
Health	1.9	3.4
Transportation	1.6	5.2
Communication	-1.3	-4.2
Recreation and culture	-0.4	0.8
Education	0.1	2.7
Insurance and Financial services	0.4	1.5
All groups (headline rate of inflation)	0.4	2.1
Underlying rate – trimmed mean	0.5	1.9
Underlying rate – weighted median	0.5	1.9

### Questions/tasks

- Identify and describe the major contributors to inflation over the year ending June quarter 2018.
- Explain why the inflation rate over the year was only 2.1% when Alcohol and tobacco prices rose by 7.8%.
- Explain how it is statistically possible for the Food and non-alcoholic beverages category to record a decrease in prices for the June quarter 2018, but an increase in prices for the year to end June 2018.
- Discuss whether the 3.1% annual increase in the Housing category will have a bigger impact on the overall CPI than the 7.8% increase in the Alcohol and tobacco category.
- Explain whether you believe an inflation rate of 2.1% is consistent with the government's low inflation goal.
- Explain how an increase in tobacco excise impacted on both headline and underlying inflation.
- Explain why the increase in the trimmed mean measure of inflation was lower than the increase in the headline rate of inflation.
- Calculate the annualised rate of inflation based on June quarter 2018 numbers and compare it to the annual rate of inflation for the year to end June 2018. Account for the difference between the two numbers.
- Discuss whether the 2.1% annual inflation rate for the year to end June 2018 provides an accurate account of the cost of living increases experienced by every Australian household.
- Based on the inflation figures, explain why some households will be better off than others over the year to end June 2018.
- Extension question:** Download the latest inflation figures from the ABS website (www.abs.gov.au) and compile a list of questions similar to those above and present to your teacher as a task for other students to complete.

## 5.10 Consequences of high inflation

All countries seek to control inflation rates because it is recognised that high inflation has real negative consequences for their economies, including a reduction in the rates of economic growth, less than full employment, declining incomes and a deterioration in material living standards.

### *The erosion of purchasing power*

The erosion of purchasing power, or the decline in the **real value of money**, is the underlying reason why inflation has negative consequences for the economy and living standards more generally.

Inflation means that consumers of goods and services will be paying more for these products over time, which erodes the **purchasing power** of any given level of income or cash. In simple terms, this means that if inflation was 10% over the past year, then any given amount of cash or money today will only be able to purchase 10% fewer goods and services (in value terms) compared to one year earlier. This particularly harms those whose income fails to increase by the same rate, or at the same pace, as inflation. Those 'lower skilled' employees with little economic strength and no union protection are more likely to experience a reduction in their **'real wage'**. This means the purchasing power of their wage falls over time and their material standard of living declines. Similarly, those low income earners on relatively **fixed incomes**, such as those on some welfare payments, will find it relatively more difficult to pay for their weekly bundle of goods and services, again resulting in a reduction in their standard of living.



Even if income earners do manage to achieve an increase in their wage to compensate for the effects of inflation, many will still lose out due to the effects of **bracket creep** (also called **fiscal drag**). This means that, as individual income earners receive pay rises, they will eventually move into higher income tax brackets, where a higher marginal rate of taxation applies to their income. This can have the effect of reducing their **real disposable income** (real income after tax), and making them worse off. For example, assume that Gennaro earns \$87,000 per year in 2019. He will be paying a marginal rate of tax of 32.5%. However, if inflation is 10% and Gennaro is compensated by his employer with an \$8,700 pay rise (which keeps his real wage intact), this \$95,700 (\$87,000 + \$8,700) income pushes him into the next tax bracket. Any additional income above \$90,000 is taxed at a rate of 37%, because in Australia the marginal rate of tax rises as income rises. This means Gennaro pays 37% tax on every additional dollar earned as a result of his pay rise. So, instead of his real income being preserved, Gennaro's real disposable income, after he has paid tax will actually fall. His loss is, however, the government's gain, as Income Tax revenue increases. [This is one of the factors behind the expected return to budget surplus - covered in chapters 8 and 9.] Of course, Gennaro might gain indirectly via changes to the government's spending/taxing decisions, if the tax receipts are used to fund programmes that benefit him in some way.

### *Distorting the allocation of resources*

#### **Loss of efficiency**

High inflation will tend to result in a **less efficient allocation of resources**. This is because economic agents will continually search for ways to protect against any loss of current or future purchasing power. Investors will be seeking to ensure that there is minimal loss associated with any funds invested in markets. Accordingly, investment can be diverted away from productive areas that create wealth and jobs (such as investment in business capital) and towards those investment opportunities that offer the best protection against inflation, such as gold, artwork and collectibles, whose returns typically increase in line with (or more than) the rate of inflation. In particular, inflation will tend to advantage those who have sufficient wealth or resources to find ways of 'beating inflation.'

High inflation will also undermine the effectiveness of the price or market mechanism as a means of allocating resources. This occurs because economic agents will be less certain about the real causes of price increases. Consumers will be uncertain whether price rises have occurred due to a rise in the quality of particular products, and producers will be less confident about the ability of price rises to provide an accurate signal about the profitability of particular products. For example, a wheat farmer who witnesses a price rise for alternative crops will be uncertain whether this could be



indicative of greater profits to be made by re-allocating resources to these crops, or more an indication of an increase in prices 'across the board' (i.e. inflation).

Inflation will also result in a waste of resources in terms of the resources used to continually communicate the new prices to consumers. While this may not seem like a significant issue, for some companies this requires the dedication of a lot of staff time and energy.

## Savings and Investment

High inflation will also tend to result in consumers devoting more of their spending to current as opposed to future consumption. In other words, the erosion of purchasing power will cause some consumers to spend more now to minimise any losses associated with holding money, the value of which is falling. Consequently, this means that they are likely to save less of any given level of income. This has negative implications for future living standards because there is likely to be a smaller pool of savings available for investment. With lower investment, the rate of economic growth will be slower and material living standards are likely to fall in the future.

### Study tip

*'Investment' in economics will typically refer to business or government expenditure on things like buildings, equipment, machinery or infrastructure more generally, which is a component of AD. However, investment can also refer to the purchase of financial assets, such as shares, bonds, superannuation or bank deposits. This means that a decision to lend money to another party is also considered an 'investment' by the lender. The 'investment' that is more important for economic activity, and the one in which economists are most interested, is that which is a component of AD.*

The above distortion is amplified by the effect that high inflation has on lending and borrowing decisions (or savings and investment). When inflation is high, economic agents will find it more attractive to borrow money or less attractive to save money. This is because any borrowing that does take place, particularly at fixed rates of interest, will see the borrowers paying back less in real terms. To illustrate, assume that someone borrows \$10,000 at an interest rate of 10%. In simplified terms, this should see the lender (who is effectively the 'saver') receive \$1000 in interest earnings. However, if inflation is 5%, the value of these interest earnings to the lender/saver is halved and the cost to the borrower is also halved, therefore discouraging lending (or saving) and encouraging borrowing. [In the real world, this distortion is less dramatic given that interest rates are set to counter the effects of inflation such that higher inflation will be met with higher interest rates, leaving the 'real interest rate' intact.]

Even when **nominal interest rates** do increase in line with inflation, the structure of the tax system ensures that there is still encouragement for businesses to borrow. This occurs because higher nominal interest rates will inflate business costs by more than the real cost of borrowing, causing tax deductions to be higher and tax expense to be lower. Investors will also see an opportunity to borrow money at relatively more attractive rates and then invest this money in financial assets (such as shares or property), pushing up the price of these assets more generally and therefore protecting the real value of their wealth. In this respect, inflation encourages the wrong type of investment. Instead of businesses (or economic agents more generally) undertaking investment in the type of (physical) assets/capital that drives economic growth, such as investment in new plant or technology, inflation encourages more **speculative investment** in financial assets.

### Study tip

*The difference between real and nominal interest rates is simply the rate of inflation. If the average interest rate in financial markets was 6%, this is referred to as the nominal interest rate. If inflation was 2%, then the real interest rate is 4%!*

## Inflation and interest rates more generally

When inflation increases, it will also tend to increase interest rates for two main reasons. First, financial institutions will increase rates in order to ensure that the real rate of interest is maintained. For example, if interest rates are 10% on average and inflation is 2%, the real rate of interest is 8%. If, however, inflation were to increase from 2% to 5%, then interest rates are likely to rise to an average 13%, as lenders will seek to protect the real rate of return on the loans they make (i.e. the real interest rate). Second, a rise in inflation will make it more likely that the Reserve Bank of Australia (RBA) will tighten monetary policy by raising the cash rate, which tends to raise interest rates more generally.

These higher interest rates will negatively impact on both consumers and businesses. The higher cost of borrowing will combine with a greater cost to repay existing debt to reduce both Consumption and Investment in the economy, which therefore reduces demand for most goods and services and decreases profit growth. Consequently, RBA action and normal market pressures will combine to raise interest rates, restrain growth in AD, reduce economic activity and decrease living standards in the short term.

## Loss in international competitiveness

Inflation that is greater than the level being experienced by Australia’s trading partners will tend to worsen our international competitiveness. This means that Australia’s **tradables sector**, made up of exporting firms and import competing firms, will find it increasingly difficult to maintain their market share in the global economy. Inflation is likely to translate into higher export prices, encouraging foreign buyers to switch to alternative suppliers. Similarly, the higher prices being charged by import competing businesses will tend to increase the demand for the relatively cheaper imports. The combined effect results in lower net export income, lower growth in AD or real GDP, and negative effects on employment growth. Overall, the growth in national income levels will be smaller (or may even fall) and the ability of Australians to improve their material living standards will be impaired. This particularly applies to those individuals or groups exposed to the traded goods sector of the Australian economy (i.e. exporters and businesses competing against imports).

## Damaging business confidence

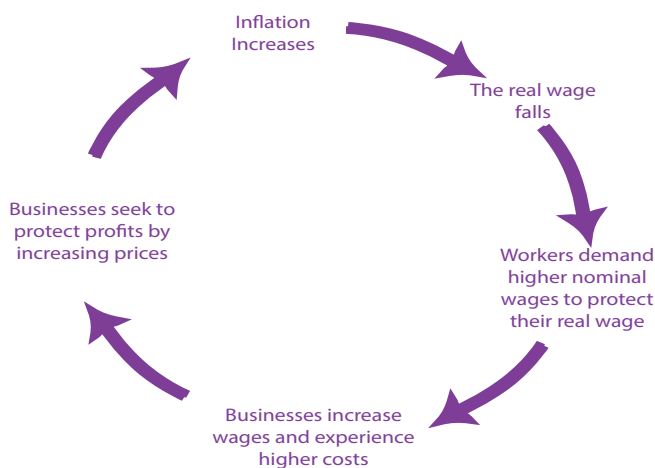
The tendency for investors to divert funds away from productive investment is further heightened by an increase in the level of uncertainty related to future investment decisions. High levels of inflation will tend to damage businesses confidence. This may result in the delay or abandonment of investment in projects that otherwise might have proceeded, leading to a less efficient allocation of resources and impairment of longer term economic growth and living standards.



## A wage-price spiral

High inflation tends to increase the likelihood of an economy experiencing the negative effects of a **wage-price spiral**. This occurs when workers are concerned about the erosion of the purchasing power of their wages (or income) and demand higher wage outcomes during inflationary periods. If employers accede to these demands, the costs of labour increase for businesses and these costs are often passed onto the consumer in the form of higher prices. The cycle of higher prices and higher wages is then established and, once set in train, it can be difficult to break a wage-price spiral. This spiral is depicted in Figure 5.1.

**Figure 5.1: The wage/price spiral**



### Study tip

The difference between nominal and real wages is similar to the difference between nominal and real GDP or nominal and real interest rates. To illustrate, if a person receives an annual salary (or wage) of \$100,000 during 2017, then this is referred to as his/her nominal wage/salary. However, if inflation is over 10% then the purchasing power of this \$100,000 is less than the year before. The 'real wage' will be closer to \$90,000, which means that a worker will need a 10% nominal wage increase in 2018 (to \$110,000) in order to purchase the exact same bundle of goods and services as they did in 2017. If this wage increase is granted, then their 'real wage' remains at \$100,000 despite the fact that their 'nominal wage' has increased to \$110,000.

However, this was more of a problem when Australia had a more centralised industrial relations system characterized by greater union power. Under the current system, which centres on an enterprise bargaining approach to wages determination, it is much more difficult to have a coordinated wages break out that attempts to compensate for the effects of inflation.

## *Inflation and the government's goals more generally*

As we have seen, high inflation will have a negative impact on the government's goal to achieve **strong and sustainable economic growth** and, as a consequence, will make it more difficult for the government to achieve **full employment**.

With high rates of inflation we would expect to see a less **equitable distribution of income**. This follows from having relatively higher rates of unemployment and the negative impact this has on the number of government welfare recipients. In addition, many low income groups (such as low skilled workers without economic power and some on fixed incomes) will experience a relatively bigger erosion of their purchasing power compared to other groups as their incomes are less likely to rise at the same rate or pace as inflation. Further, low income earners are likely to spend a greater proportion of their income on goods and services compared to higher income earners. This means that they have a higher **marginal propensity to consume** or a lower 'marginal propensity to save'. As a consequence, lower income earners will suffer a larger relative decline in the purchasing power of their income, while higher income earners will have a greater opportunity to protect the income not spent (savings) by investing in assets whose prices rise in line with (or faster than) inflation.



High inflation will also make it more difficult for Australia to achieve a more sustainable **current account deficit** and **net foreign debt** (see Chapter 7). The erosion of international competitiveness will decrease the demand for Australia's net exports, reduce the size of any Balance on Goods and Services surplus, increase the current account deficit (CAD) and place additional pressure on net foreign debt (NFD). This will eventually lead to a longer term reduction in the value of the Australian dollar. With respect to the impact on the value of the exchange rate, high inflation can initially cause an appreciation of the exchange rate as high interest rates attract capital inflow. However, over time, the exchange rate is likely to fall because of the erosion of Australia's international competitiveness and net export demand, which results in a decline in the demand for the Australian currency.

## **Review questions 5.8**

1. Explain how inflation erodes the purchasing power of money or cash.
2. Referring to the role of inflation, explain how bracket creep can make income earners worse off.
3. Provide one example of how inflation may harm lower skilled workers comparatively more than higher skilled workers.
4. Describe how productive investment may be discouraged in a high inflation environment.
5. Explain how high inflation can 'undermine the effectiveness of the price mechanism as a means of allocating resources.'
6. Outline how inflation can affect consumption and savings decisions and highlight the implications that this might have for future living standards.
7. Illustrate how inflation can impact on borrowing and lending decisions in the economy.
8. Describe how high inflation can impact on Australia's international competitiveness, economic growth and unemployment.
9. Explain the nature of a wage-price spiral and outline why these spirals are less likely to occur today compared to in the past.
10. Explain how high inflation is likely to affect economic growth and living standards via its impact on interest rates.
11. Explain why high inflation is likely to increase the rate of unemployment.
12. Explain why high inflation is likely to increase the CAD and NFD.
13. Explain how high inflation is likely to impact on the value of the AUD.
14. Explain why high inflation can lead to a less equitable distribution of income.
15. Using any three of your responses to questions 1-14, outline why inflation tends to have a negative impact on Australian living standards.

### Activity 5j: Where's my purchasing power?

Ingrid has worked part-time for a number of years and managed to save \$2,000 by the end of 2018. At the start of 2019 she invested the money in a bank account earning 5% interest. Over the course of 2019, her \$2,000 investment grew in size by \$100 and by the end of 2019 the total amount in her bank account was \$2,100. She was very happy with the outcome. Her close friend, Luis, is an IT specialist who has been in the workforce for three years. He has just been told that his normal annual wage increase of 5% will be reduced to 3% over the course of 2019. This means that his annual wage of \$100,000 will now only increase to \$103,000 when he expected it to increase to \$105,000. Luis is unhappy and is thinking about quitting his job to work elsewhere.



**Questions**

1. Explain whether Ingrid should be happy with the additional \$100?
2. Explain why your answer in Question 1 might be different if you were advised that the rate of inflation over 2019 was 5%. (Hint: Would Ingrid be able to buy more goods and services with the money in her bank account at the end of 2019 when compared to the start of 2019?)
3. Explain why Ingrid should be unhappy if the inflation rate over 2019 was 10%.
4. Discuss why Luis is unhappy with a reduction in the size of his annual wage increase.
5. Explain why your answer in question 4 might be different if Luis anticipated that the inflation rate over the course of 2019 would have fallen to 3%.
6. Explain why Luis should be happy if the inflation rate over 2019 was less than 3%.

### Activity 5k: The good, the bad or the....?

For each of the following scenarios, determine whether the impact is likely to be 'good' or 'bad' in terms of the economic impact of the event. In the final column, provide an explanation for your conclusion. You can complete the explanation in your notebook if the table doesn't provide enough space. In some cases, it is possible to select both the Good and Bad boxes. In these cases, the explanation is all the more important – you need to explain why it would be both Good and Bad.

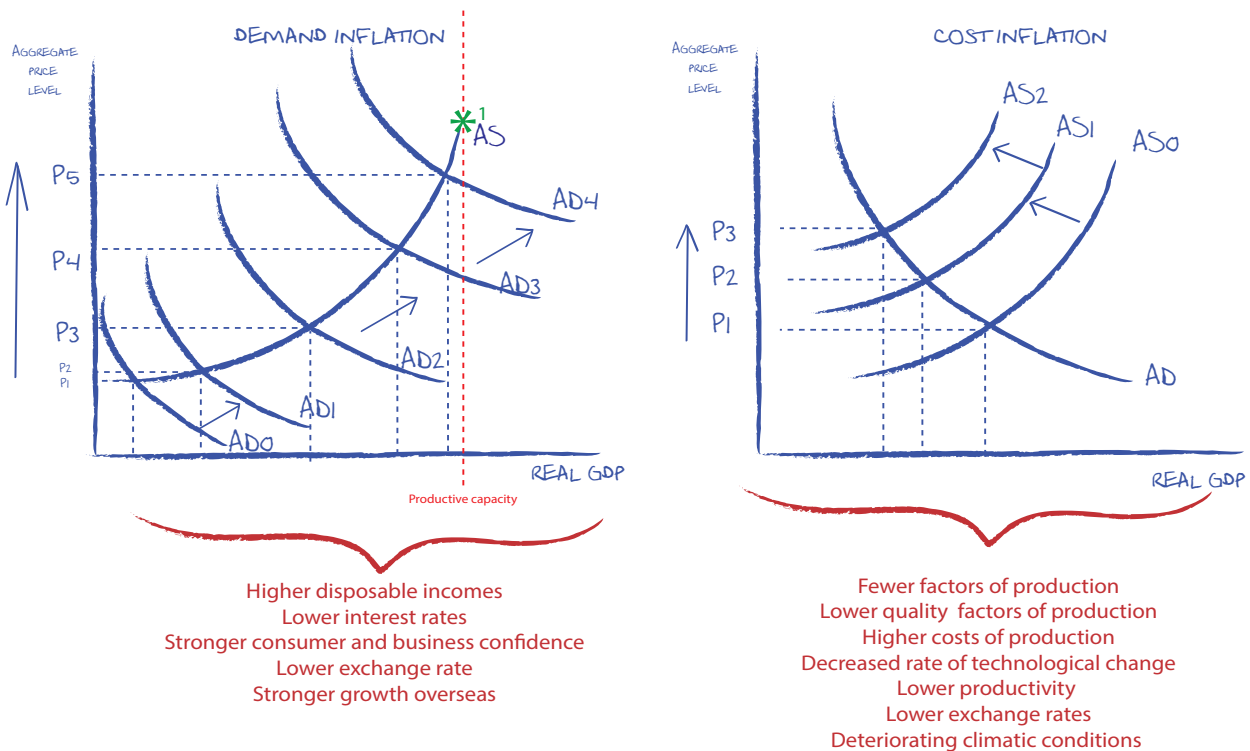
Scenario	Good	Bad	Explanation
Inflation was 5% over the past year and Harry's wage remained at \$50,000 per annum			
Ann Martinos has \$100,000 invested in the bank at a fixed interest rate of 5% per annum for two years. Inflation was 10% per annum over this time			
Australia's inflation rate remains at 3% when inflation rates in all other countries increase above 3%			
A tile importer in Prahran sources all her tiles from India, where the rate of inflation has fallen below Australia's inflation rate			
Australian businesses get caught up in a wage/price spiral			
Bracket creep occurs as a result of inflation			
Consumers gain confidence as inflation is reduced significantly			
Githika lends her friend Tony \$30,000 without charging interest, and the money is repaid one year later. Inflation over this time was 10%			
Zane is an exporter of sheep and Australian inflation rates increase well above the New Zealand inflation rate			
Higher inflation causes the RBA to increase interest rates			

## 5.11 Causes of inflation

Economists like to separate the forces impacting on inflation into aggregate demand and supply side factors. Those factors causing inflation to rise because of an increase in AD (such as an increase in consumer confidence) are referred to as *aggregate demand side factors affecting inflation*. This type of inflation is also commonly referred to as **demand inflation**. In contrast, those factors causing inflation to increase via pressure on Aggregate Supply (such as factors causing the costs of production to increase) are referred to as *supply side factors affecting inflation*. This type of inflation is often referred to as **cost inflation**.

Demand factors affecting inflation include any factor that can exert pressure on aggregate demand in the economy. Many of these factors were explored in Chapter 4. Any factor that causes AD to increase will tend to contribute to an increase in the average price level (inflation), particularly when the economy is close to (or at) its productive capacity. This can be seen in the diagram on the left in Figure 5.2, where growth in AD moves from a point (AD0) where there is ample spare capacity in the economy. As AD increases from AD0 to AD1, the excess capacity helps to prevent prices from rising much. Price will rise from P1 to P2, but it is relatively benign and inflation is likely to be sitting comfortably within the RBA's target range of 2-3%. As AD increases from AD1 to AD2, it exerts more pressure on inflation (P2 to P3), but the rise in inflation is not excessive because the economy has ample spare capacity (i.e. the economy is not producing close to its productive capacity - represented by the dashed red vertical line). However, once AD increases from AD2 to AD3, it starts to have a more significant effect on inflation (P3 to P4) because the economy is closer to its productive capacity and bottlenecks begin to present themselves in the economy because producers find it increasingly difficult to keep pace with demand for goods and services. As AD continues to rise to the point where it reaches the productive capacity of the economy at \*1 then inflation will continue to accelerate unless the economy can expand productive capacity (by shifting the AS curve to the right).

Figure 5.2

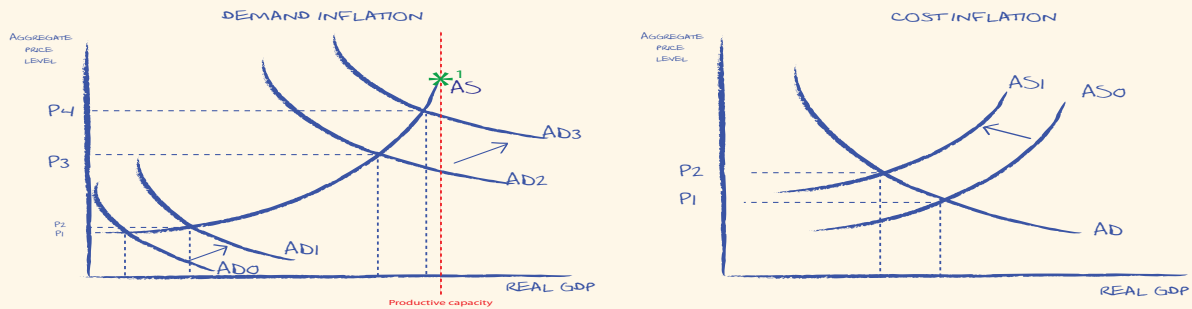


With respect to supply factors affecting inflation, they include any factor that can exert pressure on aggregate prices in the economy via changes in the costs of production or restrictions to aggregate supply levels. Alternatively, it represents inflation that has been caused by 'supply side' pressures in the economy. This is also demonstrated in Figure 5.2 in the diagram on the right, where less favourable AS conditions (such as the effects of a drought or lower productivity levels) will move the AS curve from AS0 to AS1. As production costs across the economy rise, this increases the price level from P1 to P2. Further negative supply side pressures on the economy will shift the AS curve from AS1 to AS2 causing further increases in inflation.

Figure 5.2 also highlights some of the AD and AS factors that can contribute to demand and cost inflationary pressures in the economy. In Chapter 6 we will focus on how the various AD and AS factors have influenced the rate of inflation (and the other two domestic macroeconomic goals) over the past couple of years.

## Activity 5I: Cost vs demand inflation

Refer to the diagram below and answer the questions that follow:



### Questions

- Referring to the diagram, distinguish demand inflation from cost inflation.
- Explain why inflation is likely to be more problematic when AD increases from AD2 to AD3 when compared to AD increasing from AD0 to AD1. In your answer, refer to productive capacity.
- In the event that AD in the economy increases beyond AD3, outline the impact on both inflation and real GDP and describe a solution to returning inflation to lower levels.
- Describe two factors that may have recently caused demand inflationary pressures to decrease in Australia.
- With respect to your answer to the previous question, explain whether the final impact on inflation was significant or insignificant.
- Describe two factors that have recently caused cost inflationary pressures to decrease in Australia.
- Explain how a lower exchange rate is likely to impact on inflation. Draw an AD/AS diagram to illustrate.

## Multiple choice review questions

- Which of the following best describes the government's goal for strong and sustainable growth?
  - A growth rate in real GDP of approximately 3.25%
  - The highest growth rate in real GDP without causing excessive inflation, external and environmental pressures
  - The highest growth rate in real GDP that is possible
  - The highest growth rate in real GDP without causing excessive inflation
- The total market value of all goods and services sold in Australia over a given period is a definition of
  - Gross domestic product
  - National income
  - Consumer price index
  - Gross national income
- Which of the following provides the most accurate definition of an annualised rate of economic growth?
  - Multiplying the latest quarterly figure for real GDP by four
  - Adding the four most recent quarterly figures for real GDP
  - Using the real GDP dollar values for the latest quarter and comparing them to the values for the quarter one year earlier
  - Adding up four quarterly dollar values for real GDP and comparing these to the figure attained one year earlier
- Australia pursues economic growth for all of the following reasons, except
  - To promote employment
  - To generate incomes
  - To help protect the natural environment
  - To boost living standards
- In relation to real GDP per capita, which of the following statements is incorrect?
  - It is a measure of material living standards
  - It is equivalent to the average amount of income for each Australian
  - It will not always increase when real GDP increases
  - It is derived by dividing real GDP by the number of employees in Australia

- 6. If the quarterly rate of growth in real GDP is 0.6% this means that the**
- Annual rate of economic growth is 2.4%
  - Annual rate of economic growth is 1.2%
  - Annualised rate of economic growth is 2.4%
  - Annualised rate of economic growth is 1.2%
- 7. Which of the following is least likely to suggest that living standards in Australia have improved?**
- An increase in GDP per capita
  - An increase in the number of people with tertiary qualifications
  - Lower oil prices
  - Slower rates of economic growth in China
- 8. Which of the following is the least convincing definition of full employment as it applies to Australia?**
- That level of unemployment that exists when the government's economic growth goal is achieved
  - Sustainable rate of reduction in unemployment by lifting the pace at which economic growth can be maintained without running into inflationary and external pressures
  - When everyone who wants a job can have a job
  - The attainment of the lowest unemployment rate possible before inflation begins to accelerate
- 9. Which of the following ranges for unemployment are most likely to represent the NAIRU?**
- 2.50% - 3.50%
  - 3.50% - 4.50%
  - 5.50% - 6.50%
  - 4.50% - 5.50%
- 10. Which of the following types of unemployment is not considered a component of the economy's natural unemployment levels?**
- Cyclical unemployment
  - Seasonal unemployment
  - Structural unemployment
  - Frictional unemployment
- 11. Which of the following best describes structural unemployment**
- When unemployment occurs due to insufficient levels of structural demand in the economy
  - When unemployment occurs due to insufficient skills held by the unemployed
  - When unemployment occurs due to a change in the structural component of the budget
  - When unemployment occurs due to structural change occurring at workplaces that are foreign subsidiaries of Australian companies
- 12. Which of the following statements is least correct concerning the relationship between the participation rate and the unemployment rate?**
- An increase in the participation rate can reduce the unemployment rate
  - An increase in the participation rate can increase the unemployment rate
  - An increase in the unemployment rate is likely to increase the participation rate
  - An increase in the unemployment rate is likely to decrease the participation rate

Table A

Employed persons	12,000
Unemployed persons	1,000
Underemployed persons	2,000
Persons not in the labour force but of a working age (over 15)	8,000

- 13. Which of the responses below is the most accurate way of calculating the underutilisation rate from the data contained in Table A above?**
- $(2,000/13,000) \times 100$
  - $(3,000/13,000) \times 100$
  - $(3,000/12,000) \times 100$
  - $(3,000/15,000) \times 100$

14. Which of the following statements provides the best description of 'Hidden Unemployment'?

- (a) When people are working for less than one hour per week
- (b) When people are forced to work for less than the number of hours they prefer
- (c) When people exit the labour force and seek voluntary work
- (d) When people become discouraged and stop looking for work

15. Which of the following is most likely to be a consequence of a high rate of unemployment?

- (a) Lower labour costs as the labour market loosens
- (b) Increased incomes enabling individuals to purchase more goods and services
- (c) Reduced incidence of crime and poverty
- (d) An increased likelihood of achieving equity in the distribution of income

16. The government will accept that small rates of inflation are a feature of a healthy economy. Which of the following is the least adequate explanation for why the government tolerates a small amount of inflation?

- (a) Some inflation actually represents an increase in the quality of goods and services
- (b) It allows the real wage to fall over time, helping to ensure that the price mechanism works more effectively in labour markets
- (c) Targeting low inflation rates will result in lower economic growth and higher unemployment
- (d) The costs of targeting a very low rate of inflation (such as higher unemployment) may outweigh the benefits

17. A reduction in the inflation rate is regarded as desirable because:

- (a) Imports will be more competitive against domestic industry
- (b) Business confidence and investment is likely to improve
- (c) Inflationary expectations are likely to be higher
- (d) Exporters will be less competitive

18. High inflation will tend to do all of the following, except:

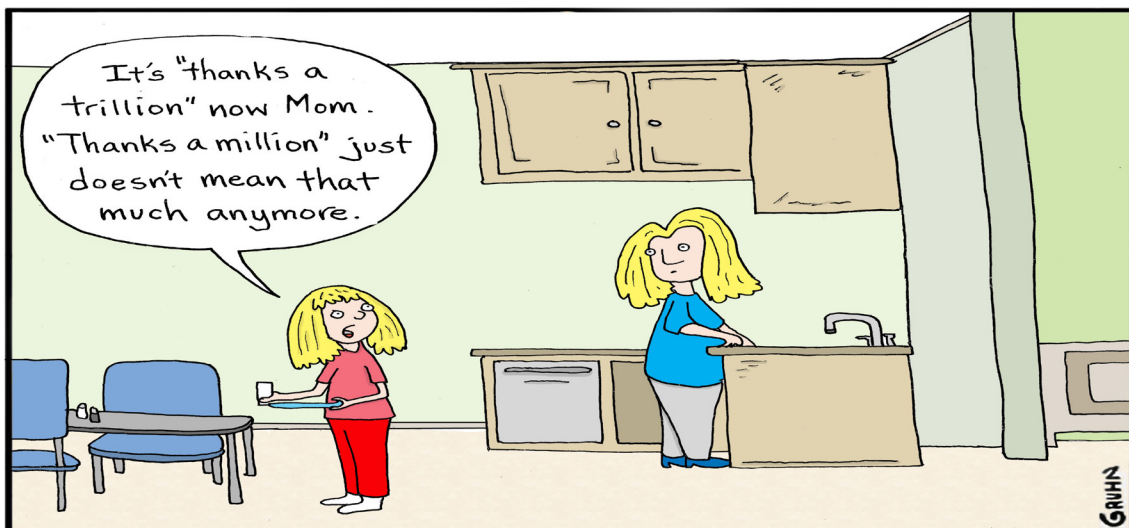
- (a) Erode purchasing power
- (b) Cause more spending to be devoted to future consumption
- (c) Reduce international competitiveness
- (d) Encourage greater borrowing in the economy

19. Which of the following price increases is unlikely to add directly to inflation as measured by the CPI?

- (a) An increase in the price of tomatoes
- (b) An increase in the price of motor vehicles
- (c) An increase in the price of bank services
- (d) An increase in the price of machinery

20. Which of the following factors is not a feature of the wage-price spiral?

- (a) Higher inflation leads to lower nominal wages
- (b) Wage increases feed into higher cost of production
- (c) Higher costs of production lead to higher prices and inflation
- (d) Businesses protect their profits and workers seek to protect real wages



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## Chapter Summary

1. Economic growth refers to any growth in the amount or level of production over time.
2. The government's goal for strong and sustainable economic growth is to achieve the highest growth rate possible, consistent with strong employment growth, but without running into unacceptable inflationary, external or environmental pressures.
3. In Australia, the gross domestic product (GDP) is used to measure the amount of production taking place in the economy and it is defined as the final market value of all goods and services produced in Australia over a given period.
4. The chain volume measure of GDP is used by the ABS to provide an estimate of 'real GDP' in the economy. In simple terms, it involves using prices from the previous period and applying them to current period volumes. So any increase in the 'value' must have occurred because of rising activity or volumes.
5. The ABS releases statistics for growth in real GDP on a quarterly basis (see ABS Catalogue 5206.0) and the figures can be reported by economists or the Media in a number of ways. These include quarterly rates of economic growth, annual rates of economic growth, and annualised rate of economic growth.
6. All governments pursue economic growth as it is the primary means by which nations can maintain and/or improve living standards over time.
7. The government is keen to ensure that the rate of growth in real GDP is sufficient to cater for a continually growing population and to boost overall living standards or welfare of Australians.
8. Economic growth is also pursued because of its positive relationship between employment growth and its ability to reduce rates of unemployment and generate incomes for households.
9. Economic growth is also pursued because it increases the ability of governments to provide essential services, such as infrastructure and welfare.
10. The government pursues a relatively strong rate of economic growth of approximately 3 – 3.5% per annum to ensure that it exceeds productivity growth and caters for an increasing population such that real GDP per capita and living standards increase over time.
11. Material living standards have declined on a number of occasions since 2008 despite material living standards rising over the past 10 years
12. Employment is a key component of economic activity and provides the impetus for growth in the economy and improvements in living standards.
13. To be classified as 'employed' by the ABS, one needs to be over 15 years of age, not in the defence forces, and working more than one hour per week in return for some form of measurable remuneration (such as wages).
14. Full employment is generally regarded as that level of unemployment that exists when the government's economic growth objective is achieved and where cyclical unemployment is non-existent.
15. The government's full employment objective involves the achievement of 'the maximum sustainable rate of reduction in unemployment by lifting the pace at which economic growth can be maintained without running into inflationary and external pressures.'
16. The full employment objective will typically involve the attainment of an unemployment rate of approximately 5%. The Non Accelerating Inflation Rate of Unemployment (NAIRU) is the lowest rate of unemployment that is achievable before inflation begins to accelerate. The current NAIRU is approximately 5%.
17. The Phillips curve depicts the relatively short-run relationship or trade-off that sometimes exists between inflation and unemployment.
18. The 'natural rate of unemployment,' is the rate of unemployment that exists when economic growth is relatively strong (in the order of 3-4% per annum) and cyclical unemployment is non-existent.
19. The natural rate of unemployment will encompass structural, seasonal, frictional and hard core unemployment, but cyclical unemployment will be zero.
20. To be classified as unemployed, a person must be over 15 and actively looking for work.
21. The labour force comprises all those people aged 15 and over who are willing and able to work. It includes the employed and the unemployed.
22. The participation rate is defined as the percentage of the total 'working age' population (over 15) that is a member of the labour force.
23. The unemployment rate represents the percentage of the labour force that is unemployed.
24. A decrease in the unemployment rate is likely to induce a rise in the participation rate.
25. 'Discouraged job seekers' or the 'hidden unemployed' are those who are excluded from unemployment statistics because they have become discouraged about their job prospects and are not actively seeking employment.
26. The underemployed are those individuals that are classified as employed, but who are at least partly unemployed in the sense that they would prefer to be working more hours than they are currently working.
27. The underutilisation rate is calculated by adding the unemployed to the underemployed and dividing by the size of the labour force. It represents the proportion of the total labour force that is 'underutilised.'
28. The lower rate of unemployment achieved by Australia over recent years overstates the strength of the labour

- market. While the unemployment rate came down, there remains a relatively high underutilisation of labour.
29. An increase in the participation rate is likely to cause a short-term increase in unemployment but can help to reduce unemployment in the long run via the effects on the productivity and price of labour.
  30. A decrease in the unemployment rate is likely to induce a rise in the participation rate as people become encouraged to re-enter the labour market.
  31. A lack of AD will cause cyclical unemployment and is generally associated with economic downturns which are part of the business cycle.
  32. Structural unemployment is caused by a mismatch between the skills set of the unemployed and the skills that are needed in the economy and is caused by factors such as the implementation of new capital and technology, changes in tastes and fashions, outsourcing, business restructuring and government microeconomic reforms.
  33. The pursuit of full employment also helps to avoid the real economic losses associated with unemployment in terms of lost production or output.
  34. Higher unemployment rates will have a negative impact on the government's budget which means that the government will have less money to fund the provision of a host of government provided goods and services that support Australian living standards.
  35. High rates of unemployment will tend to increase income inequality and increase the incidence of poverty.
  36. Ultimately, high rates of unemployment reduce material and non-material living standards of Australians.
  37. Inflation refers to a sustained increase in the general or average level of prices over time.
  38. The RBA's inflation target is to contain the increase in 'consumer price inflation' to 2-3% on average over time.
  39. The government is keen to avoid the economic costs associated with a high inflation rate, where these costs are ultimately borne by all Australians
  40. Low rates of inflation are tolerated because they allow for necessary reductions in the real wage, account for quality changes and avoid the costs of reducing it to lower levels.
  41. Deflation is the opposite of inflation and refers to a sustained decrease in the general or average price level, which means that prices on average are falling.
  42. The consumer price index (CPI) is the best and most reliable indicator of 'consumer price inflation'.
  43. Index numbers are used by statisticians to provide a meaningful way to record movements in the price or value of items that are quite diverse in nature.
  44. There are several ways of reporting inflation rates, including quarterly rates of inflation, annualised rates of inflation or the annual rate of inflation.
  45. The ABS and the RBA produce a set of inflation statistics that are derived from the original CPI, but exclude various 'volatile' prices in order to arrive at an 'underlying rate of inflation.'
  46. The most recent difference between the annual headline rate and the underlying rates over the year to end June 2018 was due largely to the higher prices for tobacco and fuel.
  47. Inflation will erode purchasing power, distort the allocation of resources, cause a loss in international competitiveness, damage confidence levels, lead to a wage-price spiral, cause interest rates to rise and have negative implications for governments.
  48. All countries seek to control inflation rates because it is recognised that high inflation has real negative consequences for their economies, resulting in a reduction in the rates of economic growth, less than full employment, declining incomes and the deterioration of material living standards.