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3. Macroeconomics / 3.3 Macroeconomic objectives

Economic growth in the short- and long-term

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Glossary



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Economists would largely agree that economic growth is a central target for any government policy. Under a market-based or capitalist system, we derive our incomes from the production of goods and services. If we want our incomes to increase, we will need our output to increase too. How this is achieved is the subject of much debate.

Short-term growth

Economic growth can be illustrated using the production possibility curve (PPC) and the aggregate supply and demand diagram, both representing the economy, which you will have seen in [subtopic 1.1.3 \(/study/app/pp/sid-186-cid-754025/book/the-production-possibility-curve-model-id-29922/\)](#).

As you have already learned, the PPC represents the size of the economy if all resources are fully employed. The quality and quantity of the factors of production are what determine the full employment level of output. There are two ways to depict economic growth using PPC: increase in actual output (short-term), and increase in potential output (long-term).

Increase in actual output

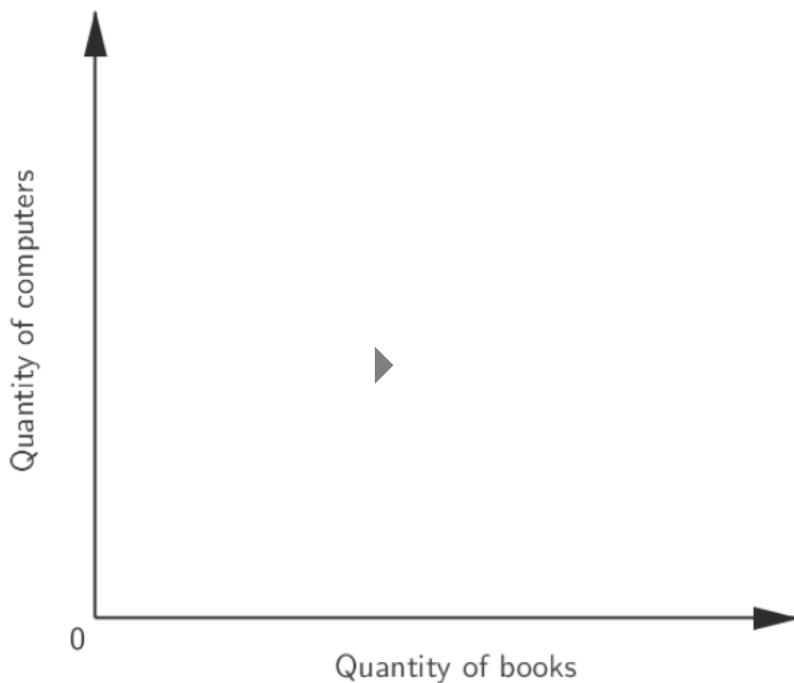


Figure 1. PPC showing two ways of illustrating economic growth.

More information for figure 1

The graph illustrates a production possibilities curve (PPC) with two axes. The horizontal X-axis represents the 'Quantity of books', and the vertical Y-axis represents the 'Quantity of computers'. The point of origin is marked as 0. The graph is likely used to depict economic growth through two ways: illustrating shifts or changes in the curve. However, specific data points, trends, or curves are not visible in this static image.

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Actual growth in the PPC model

The first way of using the PPC is to illustrate an economy which is under-utilising its resources. When an economy experiences a recession and output falls below full employment, the economy operates at position A shown in **Figure 1**, where resources such as land, labour, and capital are unemployed. Once economic growth returns to the economy and resources are returned to their full use, the economy will experience an increase in actual output and will move to point B. Increases in actual output can also be shown with an increase in aggregate demand.

✓ Important

Short-term economic growth is an increase in the actual output caused by the reduction of unemployment and production inefficiencies. This type of economic growth is limited by the production possibilities of the economy.

Role of AD in the AD/AS model

There are several ways that an economy can achieve growth in the short term in relation to aggregate demand (AD). As you have learned in subtopic 3.2, an increase in AD is determined by changes in consumption, investment, government spending, and/or net exports. These factors can be influenced by fiscal and monetary policy, as well as trade policy and consumer sentiments.

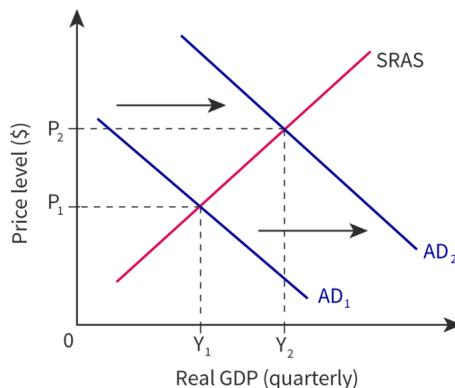


Figure 2. Increasing aggregate demand.

More information for figure 2

The graph displays the relationship between aggregate demand (AD) and short-run aggregate supply (SRAS) within an economy, using real GDP and price levels as axes. The horizontal axis represents Real GDP measured quarterly, with points labeled Y₁ and Y₂. The vertical axis shows the Price Level in dollars, with points P₁ and P₂.

There are two downward-sloping lines representing aggregate demand: AD₁ and AD₂. AD₁ is to the left, indicating a lower level of aggregate demand, while AD₂ is to the right, showing an increased level of demand. An upward-sloping line labeled SRAS represents short-run aggregate supply. The intersection points of these lines indicate equilibrium points in the economy.

The graph shows that as aggregate demand increases from AD₁ to AD₂, the equilibrium point shifts from Y₁/P₁ to Y₂/P₂, demonstrating an increase in both real GDP and price level. This visual illustrates how changes in demand can impact economic growth and inflation.

For example, a rise in investment as a component of AD will cause an increase in both AD and real GDP, as illustrated in **Figure 2**. If left uncontrolled, an increasing AD can cause high rates of inflation as the economy overheats. Therefore, boosting AD is not a sustainable solution for long-term economic growth.

A reduction of unemployment through government policies will also cause an increase in AD as more people will have the income to spend on consumer goods and services. This will increase the consumption component of AD, which often makes 60% or more of the aggregate demand in an economy.

Long-term growth: increase in potential output

Shifts of the PPC model (growth in production possibilities)

Another way of using the PPC is to show what happens when there is an improvement in the quality or quantity of the factors of production. Remember that the factors of production include land, labour, capital and entrepreneurship. The most common reasons for economic growth occurring in this way include population growth, the discovery of new resources like mineral deposits, and improvements in education and technology. When this happens, the economy's capacity to produce (or the PPC of the economy) will shift outward, showing the increased production possibilities of the economy. Now, the economy can produce at any point outside of the initial PPC_1 as the production possibilities have increased. It can increase production from B to C in **Figure 1**.

Role of LRAS in the AD/AS model

Where an increase in the quality or quantity of the factors of production can be illustrated with a PPC, economic growth can also be shown on the aggregate supply and demand graph in **Figure 3**. The factors of production determine the LRAS curve, which will shift outwards with an increase in resources or productivity. Both the new classical and Keynesian schools of thought agree that this is the kind of economic growth that is most important.

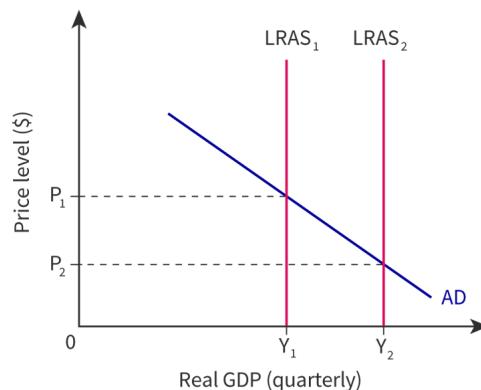


Figure 3. LRAS shifting outwards with economic growth.

[More information for figure 3](#)

The graph illustrates the relationship between real GDP and price level. The X-axis represents Real GDP (quarterly), while the Y-axis represents the Price level (\$). There are two vertical lines labeled $LRAS_1$ and $LRAS_2$, indicating a shift in the Long-Run Aggregate Supply curve from one position to another, towards the right, signifying economic growth. The Aggregate Demand curve (AD) is a downward sloping line, showing the inverse relationship between

price level and quantity of goods demanded. The intersection points of the AD curve with the LRAS curves happen at different price levels and outputs, marked as (Y_1, P_1) and (Y_2, P_2) , representing equilibrium points before and after growth.

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The new classical and Keynesian perspectives have different opinions about the time frame and sticky wages regarding short-term growth, yet both agree that long-term growth is centred on increasing capacity for economic activity. In other words, improvement in the quality and quantity of the factors of production is behind long-term economic growth.

Increases in the quantity of **resources** and improvements in their quality will cause an increase in the production possibilities of an economy, or an outward shift of PPC or LRAS. The three factors of production that determine the possibilities of an economy are:

- land
- labour
- capital

An increase in the quantity of **capital** involves an increase in machinery, roads, ports, tools, equipment, etc. An improvement in the quality of capital depends on technological advances which will result in new machinery, more advanced equipment, etc. Improvements in technology will allow more output to be produced with the same amount of inputs.

Increases in the quantity of **labour** result from migration, but this may not always be a source of growth if the labour is low-skilled. It could cause an increase in unemployment levels. Spending on education, health care and training will increase the quality of labour and equip individuals with the skills that the economy needs. Better skills, knowledge and health resulting from investment in education and health care are an important source of economic growth, as a skilled and healthy labour force is more productive.



Natural resources can be divided into two essential parts:

- land for producing marketable commodities, such as timber, minerals and natural gas
- ecological resources, such as lakes, rivers, quality of soil and biodiversity

Countries that possess a large amount of resources for the production of marketable commodities can achieve some economic growth in the long term. However, countries without an abundance of those, such as Japan, South Korea and Singapore, have also achieved long-term economic growth. The ecological resources are more important for long-term economic growth, as environmental degradation can have a direct impact on the output produced. For example, fish depletion in the sea will reduce the output of the fishing industry fishermen, and farmers working on soil with poor quality will produce less. The indirect impacts of ecological degradation can also be significant for long-term economic growth: pollution will cause an unhealthy labour force with lower productivity. Thus, the preservation and improvement of natural resources is crucial for long-term economic growth in the future. This is related to the concept of sustainability.



Measurement of economic growth

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Calculating economic growth

Economic growth rate can be calculated by using the following formula:

$$\text{Rate of economic growth} = \frac{(\text{Real GDP year 2} - \text{Real GDP year 1})}{\text{Real GDP year 1}} \times 100$$

This allows us to compare the real value of output between given years. In the table below, you can see how this would be calculated. From 2016 to 2017, the real GDP has decreased and, as you might expect, we see a negative GDP growth rate for that year (-1.04%). However, in 2018 the real GDP recovered and we can see a growth rate of +7.09%.

Table 1. GDP of the UK between 2016 and 2018 (Source: Google Data, World Bank)

Year	2016	2017	2018
Real GDP	GBP 2 694 billion	GBP 2 666 billion	GBP 2 855 billion
Calculation	-	$(2 666 - 2 694 = -28) \div 2 694$	$(2 855 - 2 666) = 189 \div 2 666$
Year-to-year growth	-	-1.04%	+7.09%

Consequences of economic growth

There are several consequences of economic growth, both positive and negative. While we desire economic growth to increase our earning potential, rampant economic growth can have several undesirable effects if left unchecked.

Impact on living standards

Student view

As mentioned previously, economic growth has the ability to increase people's incomes with increases in output. The extent to which this happens varies from country to country. The GDP per capita of China increased a lot in the years after the 1980s as Chinese economy grew strongly. 850million people were lifted out of poverty and China's poverty rate fell from 88% in 1981 to 0.7% in 2015. This is measured by the percentage of people living on the equivalent of USD 1.90 or less per day in purchasing power parity terms, according to the World Bank.

Figure 4. GDP per capita in China, Brazil and India (1960 — present day).

 More information for figure 4

However, the fast growth of the Chinese economy after the 1980s created serious pollution in the country, which is a negative externality and causes a lot of direct and indirect negative consequences to people. China's fast economic growth also resulted in increased income inequalities as the gap between rich and poor people in society increased.

Impact on the environment

Economic growth has often been blamed for the poor treatment of our environment. Countries' pursuit of higher incomes has sometimes been at the expense of the sustainability of their resources. For example, many countries have achieved high rates of economic growth with industries based on the extraction of resources, such as crude oil, trees, minerals, and so on. These are often non-renewable and will no longer be available for future generations.



Figure 5. Single-use plastic is a global environmental issue and is still polluting the ocean.

Getty Images apornares

If modifications were made to the current model for economic growth, GDP, then it might be possible to account for any environmental damage. GDP does not currently measure a country's impact on the environment, nor does it include sustainability as a primary measurement of growth. Although it is hard to place a monetary value on the environment, there are social benefits and economic benefits to sustainable economic growth.

However, it is a fact that economically developed countries dedicate more money from their budgets for the conservation and protection of the natural environment. For example, Germany has gained the reputation of a green energy giant with its commitment to cut carbon emissions by 40% by the end of 2020. Huge solar and wind energy parks have been subsidised by the government, which allow the country to take pride in its protection of air quality and the health of its citizens. With an [Environmental Performance Index \(EPI\)](https://www.google.com/url?q=https://epi.yale.edu/epi-results/2020/component/epi&sa=D&ust=1597069168674000&usg=AFQjCNEleiiPey933fcz5-Z392prGTibXw) (<https://www.google.com/url?q=https://epi.yale.edu/epi-results/2020/component/epi&sa=D&ust=1597069168674000&usg=AFQjCNEleiiPey933fcz5-Z392prGTibXw>) score of 78.37, Germany makes it to the cleanest 20 countries list in 2018. For comparison, China's EPI in 2018 was 50.74, which ranks it at 120th place in the world.



Figure 6. Aerial view of a solar park in Eggebek, Germany.

Source: "Solar Park Eggebek (<https://commons.wikimedia.org/wiki/File:SolarparkEggebek.jpg>)" by Schirello is licensed under CC BY-SA 3.0 (<https://creativecommons.org/licenses/by-sa/3.0/deed.en>).

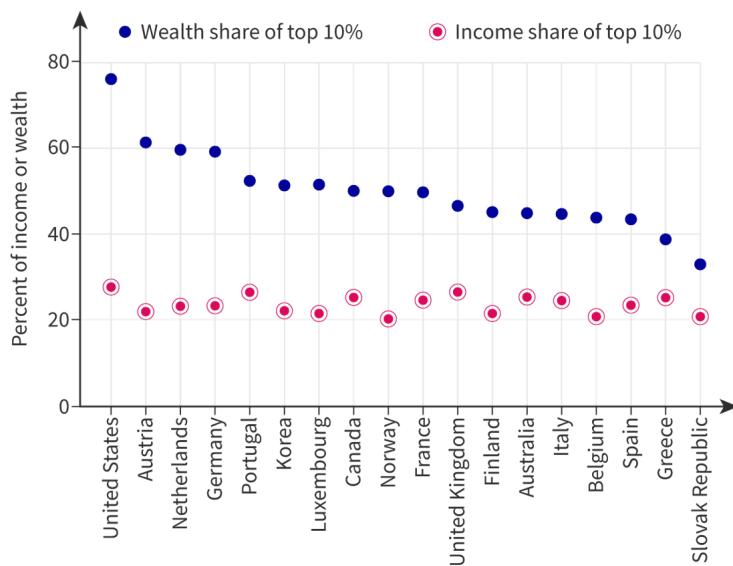
Impact on income distribution

In countries that have experienced economic growth, income gains can be felt widely across the population due to government policies advocating the distribution of income. However, this leads to further questions regarding the *equality* of the distribution of income and wealth. Although there might be measures that exist to help lower-income households, gains in income and wealth generated from economic growth [may not be distributed fairly](#) (https://www.cnbc.com/2018/07/19/income-inequality-continues-to-grow-in-the-united-states.html), leading to a wider 'gap' between the richest and poorest in society. As you will learn in [subtopic 3.4 \(/study/app/pp/sid-186-cid-754025/book/the-big-picture-id-30471/\)](#), inequality in the distribution of income results in less consumption, as lower-income households will have less disposable income and higher-income ones will be more likely to save and invest a higher percentage of their income. This will enable them to accumulate more wealth in the long run. Conversely, some economists argue that wealth concentration allows certain individuals to invest more in the means of production, therefore increasing overall economic growth. This results in more opportunities and higher levels of employment.



⚠ Be aware

Wealth and income are not interchangeable terms. Income is a flow, and refers to week to week, or month to month earnings. Whereas wealth is a stock, and refers to an accumulation of money and assets. Individuals with high incomes, and high levels of consumption, may not necessarily have a large stock of wealth!

**Figure 7. Why do some countries have wider wealth gaps than others?**Source: [OECD \(<https://stats.oecd.org/Index.aspx?DataSetCode=WEALTH>\)](https://stats.oecd.org/Index.aspx?DataSetCode=WEALTH)

More information for figure 7

The graph illustrates the wealth and income shares of the top 10% across several countries. The X-axis lists countries including the United States, Austria, the Netherlands, Germany, Portugal, Korea, Luxembourg, Canada, Norway, France, United Kingdom, Finland, Australia, Italy, Belgium, Spain, Greece, and the Slovak Republic. The Y-axis represents the percent of income or wealth, ranging from 0% to 80%.

Blue dots represent the wealth share of the top 10%, while pink circles represent the income share of the top 10%. The United States, for instance, shows the wealth share of the top 10% around 80%, while the income share is about 30%. Other countries display similar patterns, with a generally higher wealth share compared to income share among the top 10%. The data points clearly indicate significant discrepancies between the wealth and income distribution in these countries, with most wealth shares above 60% while income shares hover around 20% to 30%.

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Complete section with 3 questions

Start questions

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Low unemployment

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Notebook

It can be a little difficult to define unemployment; you might think that the state of being unemployed simply applies to everyone who does not have a job, but that is not the case. Instead, we mean everyone of working age who is looking for work but who cannot find employment. However, this causes huge difficulties for measuring unemployment, as we cannot survey every person living in a country within a reasonable time frame to ask whether they happen to be looking for work. Some people are voluntarily not seeking employment, such as those who are retired early, stay-at-home parents, or possibly those who are not looking for work because of disability.



Glossary



Reading
assistance

⊕ International Mindedness

According to the International Labour Organization (ILO) global unemployment had dropped to five percent in February 2019. Of course, the COVID-19 pandemic is likely to have a significant impact on this, as [this article from the UN outlines](https://news.un.org/en/story/2020/06/1067432) (https://news.un.org/en/story/2020/06/1067432).

This is the lowest level of world unemployment since the 2008 economic crisis.

Despite the low level of unemployment, the [ILO](https://www.ilo.org/wcmsp5/groups/public/---dcomm/---publ/documents/publication/wcms_670542.pdf) (https://www.ilo.org/wcmsp5/groups/public/---dcomm/---publ/documents/publication/wcms_670542.pdf) is concerned that the majority of people employed around the world are working under poor conditions and are hardly able to make a decent living. It is especially concerning that one quarter of those employed in low- and middle-income countries do not earn enough to escape extreme or moderate poverty.

Another worrying issue is the high youth unemployment in many countries. One in every five young people under 25 years of age are jobless and have no skills.

The third major issue is that there is no real progress made in closing the gender gap in labour force participation. Only 48% of women are working compared to 75% of men.

Student view



Figure 1. Women protesting against unemployment in the 1930s.

Getty Images Topical Press Agency / Stringer



Measurement of unemployment

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 employed, or unemployed and seeking work.

The unemployment rate is the percentage of the labour force who are actively looking for work but are without a job and is calculated by the following formula:

$$\text{Unemployment rate} = \frac{\text{Number of unemployed}}{\text{Total labour force}} \times 100$$

You will need to be able to calculate the unemployment rate from a set of data. It is important to remember that the definition of unemployed is anyone in the labour force who is out of work but actively seeking employment. So people who have stopped their search for jobs would not be considered unemployed, nor does the labour force consist of the entire population or all those of working age.

Worked example 1

The Netherlands government published the following unemployment data for March 2020 (Source: [cbs.nl](http://statline.cbs.nl/statweb/publication/?vw=t&dm=slen&pa=80590eng&d1=3-4%2c10-14&d2=0&d3=0&d4=(1-26)-&hd=151217-1659&la=en&hdr=t&stb=g1%2cg2%2cg3)):

Number of employed people (in thousands): 9 040

Total labour force (in thousands): 9 313

To find the number of unemployed people, we need to subtract the number of employed people from the total labour force. Use the data given above to find the number of unemployed and the unemployment rate:

To find the number of unemployed, subtract the number of employed from the total labour force:

$$9\,313 - 9\,040 = 273 \text{ thousand}$$

Now, apply the formula for unemployment rate:

$$\text{Unemployment rate} = \frac{273}{9\,313} \times 100 = 2.93\%$$

Worked example 2:

Another country announced the following employment data:

Working age population (in thousands): 63 426

Number of employed people (in thousands): 47 350

Discouraged and economically inactive workers (in thousands): 3 501

Student view

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‘Discouraged workers’ are people of working age who have been unemployed for a long time and are not looking for a job actively.)

First, you must find the correct size of the labour force. Then, using your result, find out the unemployment rate.

To find the size of the labour force, take the working age population and subtract the discouraged and inactive workers.

$$\text{Labour force} = 63\,426 - 3501 = 59\,925$$

Now, we need to find out how many in the labour force are not in work. Take the labour force number and subtract those that have work. This will give you the number of unemployed. Then, divide that number by the total labour force to find out the unemployment rate.

$$\text{Number of unemployed} = 59\,925 - 47\,350 = 12\,575 \quad \text{Unemployment rate} = \frac{12\,575}{59\,925} \times 100 = 20.98\%$$

Difficulties of measuring unemployment

As already mentioned, it is very difficult to accurately measure the number of unemployed people in a population. As with all gathering of statistics, there will be sampling errors and governments cannot know the exact number of people who are actively seeking work at a given point in time. Remember that those who are *not seeking work* and have other commitments, such as those in full-time studies or stay-at-home parents, will not count as being unemployed since they are currently *not seeking work* and would not take it if offered. Reasons for the occurrence of sampling errors and inaccuracies in unemployment data are as follows:

- 1. Hidden unemployment:** Part-time workers are considered as employed although their skills are not fully utilised. A highly-skilled employee such as an engineer might work as a taxi driver, which again means that the person's skills are not fully utilised. People in retraining programs who previously lost their jobs or people who retire early instead of working also lead to an underestimation of unemployment statistics.
- 2. Discouraged workers:** A second reason why unemployment data often contains inaccuracies is that many people may be put off looking for work if they have spent a long period of time unemployed. These discouraged workers, who would take a job if offered, won't be included. According to our definition of unemployment, people have to be *actively seeking work* to be considered unemployed.
- 3. Regional, ethnic, age and gender disparities:** Because the unemployment rate is usually published as a national unemployment rate, and is essentially an average, the data ignores regional, ethnic, age and gender disparities. For example, in many countries in Europe the unemployment rate among young people is almost double the rate of unemployment nationally.
- 4. Informal economy:** people employed in the underground or informal economy might be registered as unemployed and claiming unemployment benefits. This would cause the unemployment rate to be overestimated.

Complete section with 3 questions

Start questions



Causes of unemployment, costs, and solutions

Section

[Feedback](#)


Notebook Not all unemployed people are without work for the same reasons, and the reasons vary in how problematic they are. It may be that you are just no longer happy in your job, or your boss is not very happy with you! It may be that the business you work for is facing tough competition from abroad or technological change. In all, there are four types of unemployment that fall under two broad categories. The first category is disequilibrium unemployment and includes cyclical (demand-deficient) and real-wage unemployment. The second category is equilibrium or natural rate of unemployment and includes frictional, seasonal and structural unemployment.



During the 1990s in the US, there was a boom in the technology industry, which became known as the dotcom bubble. This ended in the early 2000s with a stock market crash, and many people in that industry found themselves jobless as a result. Many of these people will have needed to retrain as the size of the industry permanently reduced. In fact, 20 years later, investment in the industry has yet to achieve the pre-crash level.

Case study

Automatisation

Are robots taking our jobs? The short answer is no. The long answer is: yes ↗ (<https://www.bbc.com/news/business-48760799>), but the effects on unemployment might not be as detrimental as you might think.



Figure 1. As technology has improved, more and more jobs can be done with automated systems.

Credit: Getty Images Sompong Rattanakunchon

Technological innovations have long been perceived as a threat to our way of working, as technology is so much more efficient and accurate than we humans could ever be. The fears are that they would take our jobs, resulting in mass unemployment. Whilst there have been major technological upheavals that have forced businesses to restructure their workforce, we often forget that new jobs are created ↗ (<https://www.washingtonpost.com/technology/2018/09/18/machines-will-create-million-more-jobs-than-they-displace-by-world-economic-forum-says/>) in the process. We need people to build, maintain and continue to improve these changes in technology. This creates gains in productivity and living standards.

Many of the changes in automation come from changes that augment existing jobs ↗ (<https://www.wired.co.uk/article/robots-human-jobs>), making it easier, safer, and perhaps more pleasant for humans to conduct their work. As technological advancements continue, the number of jobs in certain industries might shrink ↗ (<https://www.hollywoodreporter.com/live-feed/five-years-network-ratings-declines-explained-1241524>) or even disappear, but others will take their place ↗ (<https://www.japantimes.co.jp/opinion/2020/01/04/commentary/world-commentary/decade-netflix-hollywood/>).

So far, we have continued to find employment and see living standards rise in an ever more technologically-driven world. Will this continue in the 21st century as drones fill our skies and self-driving cars ↗ (<https://www.businessinsider.com/uber-lyft-self-driving-taxis-may-not-help-profitability-mit-2019-5?IR=T>) roam our streets?

What kind of job skills would be required in the near future?

In what ways can working people prepare themselves for the future job requirements?

Causes of unemployment

Cyclical (demand-deficient)

Arguably the most concerning cause of unemployment is a recession, which has the potential to reduce income not just for the unemployed but also for the rest of the earning population. In this case, a reduction in aggregate demand would cause a fall in national output, a fall in earnings for businesses and individuals, an increase in unemployment and, potentially, a fall in the general price level too. This type of unemployment is known as cyclical unemployment or **demand-deficient unemployment**.

Recessions can also cause a supply shock when aggregate supply falls, causing costs of production to rise and resulting in what is termed as stagflation. This was the primary cause of the economic problems experienced in many countries during the 1970s and 1980s, largely due to the rise in oil prices.

In **Figure 2**, total demand for labour falls from AD_L to AD_{L1} . At the market wage rate W_E , firms are not willing to employ the entire supply of labour, so there is disequilibrium. The number of unemployed workers is represented by the gap between A and B, or Q_E and Q_1 .

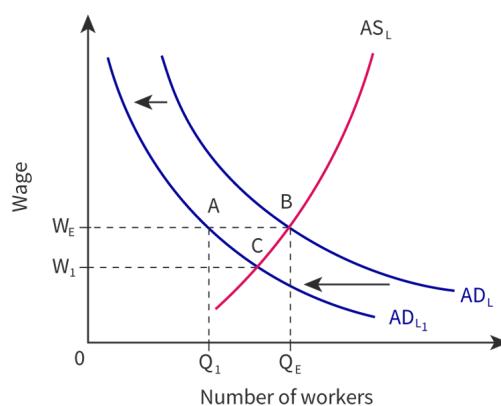


Figure 2. Cyclical unemployment.

↗ More information for figure 2

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The image is a graph depicting cyclical unemployment. The X-axis is labeled "Number of workers" and ranges from 0 onward, while the Y-axis is labeled "Wage," indicating various wage levels. There are three important curves in the graph: ASL, ADL, and ADL1. The ASL curve slopes upward, while both ADL and ADL1 slopes are downward, with ADL1 positioned to the left of ADL, indicating a decrease in aggregate demand for labor.

Key points A, B, and C are marked on the graph. Point A is on the ADL curve, and point B is on the ADL1 curve. Point C is the intersection of ASL and ADL.

The horizontal lines, WE and W1, represent different wage rates. A gap between Q1 and QE on the X-axis indicates the difference between the number of workers at market wage rate WE and at the lower wage rate W1, demonstrating the number of unemployed workers.

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Real-wage unemployment

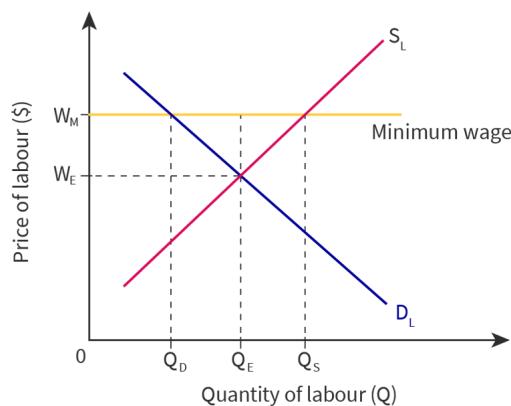


Figure 3. Minimum wage in the labour market.

More information for figure 3

Student view

As seen in **Figure 3**, a government-imposed minimum wage can also increase unemployment. This is known as real-wage unemployment, where there is a gap between the number of jobs available and the number of people willing and able to work at the prevailing wage rate. With a wage above the equilibrium market wage, firms will only demand Q_D labour but there will be Q_S supply of labour as individuals are more willing and able to work for the higher wage.

Natural rate of unemployment

These types of unemployment are expected in any capitalist economic system as innovation, competition, and seasonal forces account for these types of changes in the employment level. No economies desire a 0% unemployment rate and most are happy with a number in the low single digits. This is because it is expected that the economy will experience competition and innovation.

When people are unemployed only in this way, this is termed the natural rate of unemployment. This includes frictional, seasonal and structural unemployment.



Frictional

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Frictional unemployment is when people are between jobs. You may choose yourself to take some time after leaving a place of work to find a new job, in order to make sure you find the best fit. This may also occur when people leave school or college to seek employment. This is a common type of unemployment that many people may face in their working lives at some stage, but a government will want to keep the length of time an individual spends unemployed as short as possible as it wants people to remain economically active.

Seasonal

Seasonal unemployment occurs when people do specific job types that are only required during certain times of the year. For example, ski instructors in the Alps will only be able to find work during the winter ski season in resorts. This naturally occurs in all societies and is not a type of unemployment that a government should be worried about.



Figure 4. A ski instructor during the winter.

Credit: Getty Images DOUGBERRY

Structural

Structural unemployment occurs when there is a mismatch between the supply and demand for a particular set of labour skills. There are two main causes for this.

Student view

First, when an industry relocates across a country or to another country, it is unlikely that people will move with the industry. Some may move to take up managerial positions for the firm, but this does not apply to all employees. The difficulty of geographical relocation is one aspect of labour mobility that no government will be able to improve significantly. Some attempts can be made with improved access to job information via the Internet, and improved transport links, but in the end firms themselves will need to find ways to attract new employees. If a major industry relocates, this will also affect the job market in its previous location. This can cause major problems for some regions in some countries, especially when manufacturing industries have reduced in size, and cities and towns in those areas suffer from high rates of unemployment. This is illustrated in **Figure 5a**. The decrease in the demand for labour in an industry is illustrated as a shift from D_1 to D_2 , lowering the wage rate and decreasing the quantity demanded of labour from Q_1 to Q_2 , representing an increase in unemployment.

Second, labour market rigidities such as how difficult it is for people to change jobs and job type, and employment legislation that prevents the easy firing of ineffective workers, will reduce the supply of labour available. If the labour market becomes increasingly rigid, the number of people willing to work will decrease. This is illustrated in **Figure 5b**. The supply of labour shifts inwards from S_1 to S_2 , increasing the wage rate and decreasing the quantity of labour demanded from Q_1 to Q_2 , again representing an increase in unemployment.

Both the shift shown in **Figure 5a** and the shift shown in **Figure 5b** will result in the equilibrium quantity of labour falling below the total labour force, as illustrated in **Figure 5c**.

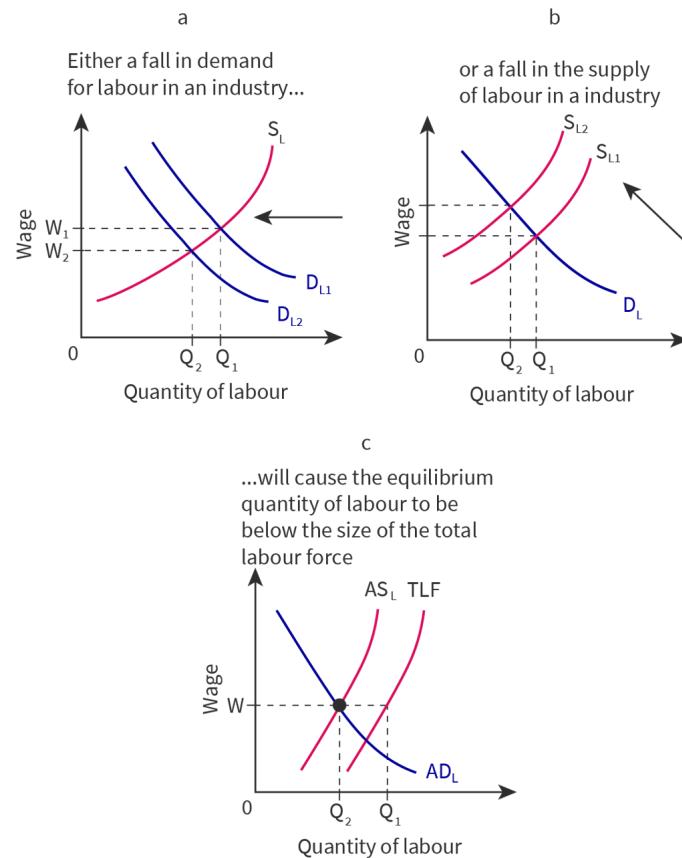


Figure 5. Graphs showing the causes of structural unemployment.

[More information for figure 5](#)

The image contains three graphs labeled a, b, and c, illustrating the causes of structural unemployment.

Graph a: This graph shows a demand and supply curve for labor where the x-axis is labeled "Quantity of labour" and the y-axis is labeled "Wage." Initially, the demand curve D_{L1} intersects the supply curve S_L at point W_1, Q_1 . A shift in demand to a new curve D_{L2} results in a new equilibrium at W_2, Q_2 , indicating a fall in labor demand.

Graph b: Similar to graph a, this graph also has "Quantity of labour" on the x-axis and "Wage" on the y-axis. It shows a supply shift from S_L to S_{L2} , demonstrating a fall in labor supply. The equilibrium moves from W_1, Q_1 to W_2, Q_2 .

Graph c: This graph combines both scenarios from graphs a and b. It shows the aggregate demand curve AD_L intersecting with AS_L and the Total Labour Force (TLF). The equilibrium wage W corresponds to a quantity Q_2 , below the total labor force, illustrating structural unemployment as the quantity of labor is less than the total labor force.

[Generated by AI]

Activity

- Can you think of any jobs that used to exist but have now largely disappeared due to structural changes to the economy? What jobs do you think you will see completely disappear in the future?
- With a partner or individually, research these jobs and examine how economies have adapted to these changes.
- How have they been able to retrain the labour force for these new jobs? Will education and training be different in the future of work?
 - How can governments help to reduce structural unemployment?

Theory of Knowledge

William Clifford stated in *Ethics of Belief* (1877) that 'it is wrong always, everywhere, and for anyone, to believe anything upon insufficient evidence.'

How do we judge sufficient evidence? Are some data sets more reliable and valid than others?

In the run-up to the 2016 election, Donald Trump argued that the unemployment rate was undercounted. On Oct 9th 2015, he was quoted as saying;

'They say 5.3 percent employment. The number is probably 32 percent!'

The unemployment rate is an important economic indicator. It gives a simple snapshot of the economy. You might think that the unemployment rate is an objective measure of individuals who are out of work, but the real world is much more problematic.

In the US, in June 2020, the unemployment rate was [2.1%](https://www.bls.gov/news.release/empsit.t15.htm), 8.9%, 11.1%, 11.5%, 12.5%, and 18% all at the same time. How can this be the case?

There are a range of methods to measure unemployment.

The Bureau of Statistics in the US [uses six different ways to measure unemployment](https://courses.lumenlearning.com/boundless-economics/chapter/measuring-unemployment/).

- U1: % of the labour force unemployed for 15 weeks or longer.
- U2: % of the labour force who lost jobs.
- U3: the official unemployment rate that occurs when people are without jobs and they have actively looked for work within the past four weeks.
- U4: U3 unemployment rate plus those who have stopped looking for work (discouraged workers).
- U5: U4 unemployment rate plus other 'marginally attached workers', those who want and are able to work, but have stopped looking.
- U6: U5 unemployment rate plus part-time workers who want to work full-time, but cannot find a full time position.

How can we know which measure of unemployment is more accurate than the others?

Knowledge question : How can economists know which statistical data should be used to determine economic policy ?

Costs of unemployment

The costs of unemployment are significant, causing economic, personal and social problems.

Economic costs

Many economic consequences of unemployment are fairly obvious – these are the ones we hear about in the news, the ones that the politicians argue over in government and the ones that are relatively easy to measure.

- 1. Loss of GDP:** Economically, people who are not engaged in production will not contribute to a nation's GDP and will not earn a salary or wage with which to contribute to consumption. As consumption tends to make up a large portion of many countries' GDP, unemployment can be a serious problem.
- 2. Loss of tax revenue:** With individuals on reduced or no incomes, tax revenues for the government will fall. This makes it more difficult for the government to run a balanced budget during times of high unemployment. Governments will often run deficits as pressure grows on social programmes, such as unemployment benefit or disability allowance.
- 3. Increased cost of unemployment benefits:** In addition to falling government revenues, there will be added pressure on government finances when larger numbers of people start to claim unemployment benefits. This is in addition to greater costs associated with increased claims on disability ↗
<https://www.marketwatch.com/story/nearly-a-million-filed-for-disability-during-the-recession-who-otherwise-wouldnt-have-study-finds-2018-12-10> and early retirements. This puts more pressure on government finances at a time when tax revenues are falling.
- 4. Loss of income for individuals:** So far, we have mentioned consequences for a nation's economy, but loss of income for individuals is particularly difficult if the general price levels do not also fall. The classical economic theory does suggest that we can expect a fall in the general price level if there is unemployment of resources, as firms can lower wages to keep costs low and to boost output. This means lower wages for those who remain employed, which is not a desirable outcome. Keynesians would point to the stickiness of wages and prices to refute this. There is conflicting evidence of this happening, and it usually depends on the length and severity of the economic problem. Reduced or lost wages tend to have a multiplier effect on the rest of the economy. This results in reduced consumption and a leftward shift of AD.
- 5. Greater disparities in the distribution of income:** Job security varies with industry and job type. In industries where work is more casual, like hospitality, and workers are paid a wage per hour, it is easy to reduce costs of production by reducing hours or employee numbers if the economy were to dip. At the same time, of course, these people are earning lower or no wages, and would not find it easy to cover costs of living. Permanent, full-time workers such as those in managerial positions in business tend to face less of a threat to hours in times of economic hardship. Therefore, those who are most susceptible to finding themselves unemployed during a recession are usually those on lower incomes. This is not always true, as we saw during the 2008 financial crisis, when the banking and construction industries in many countries were hit the hardest.



Figure 6. A job centre in the United Kingdom, where people have to register to receive unemployment benefits.

Credit: Getty Images Catherine Ivill / Staff



Personal costs of unemployment

Overview

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There are many consequences that are not easily measurable that affect individuals in a qualitative way. In other words, unemployment can damage an individual's quality of life, both at the point of becoming unemployed and also over a longer period as long-term unemployment affects the likelihood of being hired again in the future. Finding another job can take a long time and bills continue to need paying. This can be very stressful on an individual and takes a toll on physical and mental health. Particularly the long-term costs of unemployment, although difficult to measure, should not be ignored. In many places recovering from the 2008 financial crash, unemployment remained high for a significant enough time that these labour markets have suffered a loss of skills and, therefore, a diminished ability to qualify for positions.

- **Increased indebtedness, homelessness and family breakdown:** The longer unemployment continues, the more severe the consequences for individuals can become. A person's employment status is tied to many things such as loan agreements and the renting or ownership of their home. If someone loses their job, they will struggle to make the expected monthly payments and can only sustain finances by borrowing for a relatively short period of time. Unemployed people may lose their home as a result of inability to make mortgage repayments.
- **Increased stress levels:** Losing a job is an extremely stressful experience, especially if there are dependents to look after like children or ageing family members. Stress can manifest itself physically and mentally, and may put extra pressure on the national health care system.

Social costs of unemployment

- **Increased crime rates:** It may be argued that an increase in unemployment may lead to an increase in the crime rate in a country. As people lose their steady source of income, it is plausible that they may turn to other ways of making money. However, the evidence of this being true is not clear (<https://smartech.gatech.edu/bitstream/handle/1853/53294/theeffectsofunemploymentoncimerates.pdf>), and economists have struggled to isolate the exact relationship between unemployment and crime while trying to account for other explanatory factors, such educational attainment and socioeconomic background.
- **Increased risks to health:** In some countries, employment is tied to health care and other essential services. As people lose their jobs, they lose access to that health care for themselves and their families, which will have a negative effect on their health. This is not only a problem for them personally, but also for the country, as the healthy labour force is reduced, which can lead to less economic activity.

Student view

! Exam tip

Past Paper 1 exams have asked you to discuss which consequence of unemployment you think is most significant. Examiners will be looking for a good explanation of these consequences, coupled with a discussion of why one might be the most significant. For example, you could choose to discuss why reduced government revenue is the most significant. However, you should also consider why this is more important than personal and social consequences.



Figure 7. It can be traumatic when a family encounters financial difficulties.

Credit: Getty Images Jose Luis Pelaez Inc

Solutions for unemployment

There are two angles from which a government can address the problem of unemployment and its policy response will depend on the type of unemployment it is dealing with. When asked about the types of unemployment, it is wise to include a diagram such as **Figure 8**, in which you can see the equilibrium rate of unemployment between A and C and the disequilibrium rate of unemployment between A and B. During a recession, both equilibrium and disequilibrium unemployment will exist. This is due to the presence of equilibrium unemployment in the economy (natural unemployment) and the tendency of wages to remain at the level W_2 even as AD_L shifts leftward. If wages were flexible and not 'sticky', the labour market would return to a new equilibrium at point E.

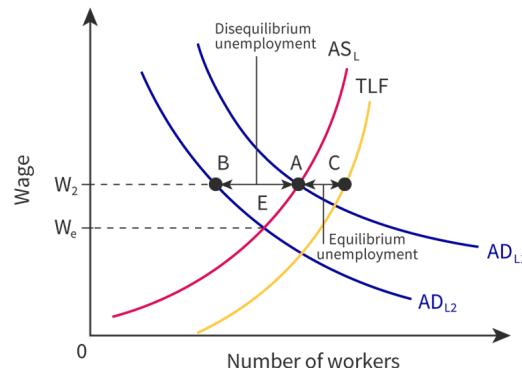


Figure 8. Disequilibrium and equilibrium unemployment.

More information for figure 8

The diagram illustrates the concept of equilibrium and disequilibrium unemployment through a graph with axes and labeled curves. The X-axis represents the "Number of workers," while the Y-axis represents "Wage." The graph includes several curves: the upward sloping AS_L and TLF , and the downward sloping AD_{L1} and AD_{L2} . Key points on the graph are labeled as A, B, C, and E.

- At point A, the market is shown with both equilibrium and disequilibrium unemployment.
- Point B extends up from the AD_{L1} curve, indicating a point of disequilibrium unemployment.
- Point C is on the TLF curve, representing equilibrium unemployment when intersecting with AS_L .
- Point E, found below the W_2 wage line, shows the potential market adjustment if wages were flexible.

The labels "Disequilibrium unemployment" and "Equilibrium unemployment" help indicate areas between these points, showing how the labor market adjusts depending on wage flexibility and aggregate demand (AD). The curves visually represent shifts and points of intersection indicating labor market dynamics.

[Generated by AI]

If the problem is the result of a fall in aggregate demand that has caused *cyclical unemployment*, then the government will need to address the fall in aggregate demand directly. This will be discussed in greater detail in the sections on fiscal policy and monetary policy. In essence this involves stimulating aggregate demand using tax incentives, increased government spending, lower interest rates and a greater supply of money. The effectiveness of these policies will vary and often depends on the severity of the crisis. The AD will fall during a recession as confidence in the economy takes time to recover from whatever shock caused the problem in the first place. Therefore, any efforts by the government to stimulate demand may take some time and will depend on the economic conditions of the time.

Structural unemployment can be reduced using policies that improve the flexibility of the labour force. The education system should be designed so that students graduate from school and university with skills that will improve their employability. In addition, there should be provision for adult education and training, allowing older members of society to re-qualify and gain new skills. How information about the job market is communicated can also be improved, especially with increasing use of the Internet and social networking sites. However, it will take time to develop a truly flexible labour force and this can potentially result in an opportunity cost for government spending. We need to remember that many causes of labour market rigidity were originally policies designed to protect employees from unfair dismissal, sudden reductions in pay and poor working conditions. Such legislation can result in significant costs for businesses, but the softening of this legislation that was meant to protect workers will mean significant changes for employees' safety, pay, and security.

Finally, a well-designed welfare system has the potential to create an efficient labour market. Critics of large welfare states argue that it can become too easy for people to spend long periods of time unemployed if they are able to claim large benefit payments. At the same time, governments do not want unemployment to be an immediate cause of poverty, nor the fear of it to cause rigidity.



⚠ Be aware

Disequilibrium unemployment refers to the labour market being in disequilibrium, while the goods market is in equilibrium. An inability for the wage rate to fall when there is a fall in demand for labour will cause an excess supply of labour. **Equilibrium unemployment** is the result of changing workforce patterns resulting in a new equilibrium in the labour market.

📋 Case study

Impact of COVID-19 on unemployment



Figure 9. Filing in an unemployment benefits application.

Credit: Getty Images courtneyk

In 2020, unprecedented measures were taken around the world to close borders, [schools ↗](https://en.unesco.org/covid19/educationresponse?fbclid=IwAR2zQ8mVPVp87QXEDIfff-jno1t1ITBYsT7GFDgujJUDmighG4mYiRYXBMU) (<https://en.unesco.org/covid19/educationresponse?fbclid=IwAR2zQ8mVPVp87QXEDIfff-jno1t1ITBYsT7GFDgujJUDmighG4mYiRYXBMU>), public places and businesses that were deemed non-essential to prevent the spread of the COVID-19 virus.

As these measures were taking place, a major concern for all countries was: what will happen to employees and businesses with these restrictions? If businesses are forced to close, how do employees receive their salaries? Can they work from home? Are they unemployed otherwise? Some countries, like Ireland and Denmark, [acted to cooperate ↗](https://www.theguardian.com/commentisfree/2020/mar/18/denmark-coronavirus-uk-government-workers-employees) (<https://www.theguardian.com/commentisfree/2020/mar/18/denmark-coronavirus-uk-government-workers-employees>) with businesses and quickly reassure them that employees would receive regular pay, they would not be fired and businesses could apply for loan extensions. This resulted in a temporary freeze on what might have been a massive shift to unemployment among the countries' labour forces.

In the US, a different approach was taken. The [CARES Act ↗](https://www.forbes.com/sites/leonlabrecque/2020/03/29/the-cares-act-has-passed-here-are-the-highlights/#4fb9e1a968cd) (<https://www.forbes.com/sites/leonlabrecque/2020/03/29/the-cares-act-has-passed-here-are-the-highlights/#4fb9e1a968cd>) contained a number of provisions to help businesses and employees during this uncertain time. However, in the case of employees, they did this by increasing unemployment benefits and providing a cash stipend to all taxpayers. The claims filed for unemployment in the last two weeks of March [hit record highs ↗](https://www.theguardian.com/business/2020/apr/02/us-unemployment-coronavirus-economy) (<https://www.theguardian.com/business/2020/apr/02/us-unemployment-coronavirus-economy>) and yet the reported unemployment rate for March was just [4.4% ↗](https://data.bls.gov/timeseries/LNS14000000) (<https://data.bls.gov/timeseries/LNS14000000>). How could this be?

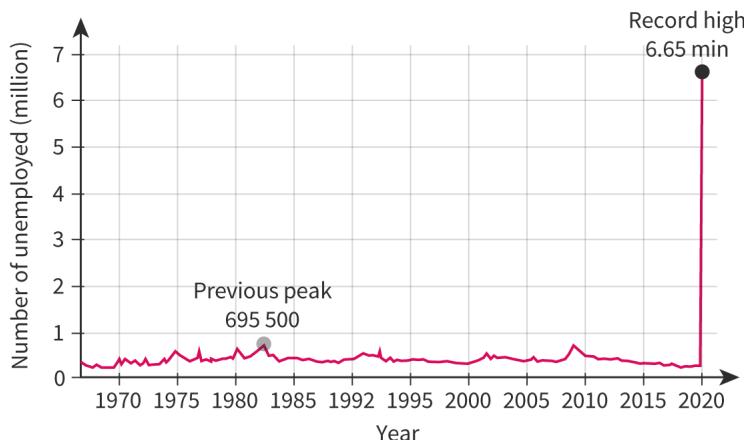


Figure 6. In the US, unemployment benefits claims dramatically rise due to the Coronavirus outbreak.

Source: DOLETA (<https://oui.doleta.gov/unemploy/claimssum.asp>)

More information for figure 6



Overview
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The image is a line graph illustrating the number of unemployed individuals in the U.S., measured in millions, over fifty years, from 1970 to 2020. The x-axis represents the years while the y-axis measures the number of unemployed in millions, ranging from 0 to 7 million. The graph demonstrates a dramatic rise in unemployment claims in 2020, reaching a record high of 6.65 million. Prior to this spike, the highest recorded peak was 695,500, illustrating the unprecedented increase during the coronavirus outbreak. The trend line is relatively flat until it abruptly shoots up at 2020.

[Generated by AI]

The US conducted a survey in late March to ascertain the rise in unemployment, with the results published in April. The survey asked respondents questions about the week prior to when the survey occurred, when many were still employed, which resulted in a lag in the data.

Do you think the US measurement provides an inaccurate measure of how many people are unemployed in the economy? Or, perhaps, is the Danish model, which keeps employees on the payroll even when they are not working, less accurate? How do countries best support those who are unemployed during normal times but also during times of uncertainty? Do you think some of the lessons these governments learned in 2020 will change policy in the future?

Complete section with 7 questions

Start questions

◀ Previous section (/study/app/pp/sid-186-cid-754025/book/low-unemployment-id-31077/)

Next section ➤ (/study/app/pp/sid-186-cid-754025/book/ii)



Student
view

Inflation and its causes

Section

Feedback

Table of
contents


Notebook **Inflation** can be very problematic for individuals, businesses and the economy as a whole. What the government can do about it largely depends on the type of inflation needing to be dealt with, or, as we will see, the root cause of it. One macroeconomic objective is to achieve a low and stable rate of inflation. To new classical economists, this is the most important objective as unstable rates of inflation cause uncertainty in the economy and affect consumers' and firms' spending decisions. However, thinking about the circular flow of income, you might argue that falling prices would surely be more detrimental than rising prices as we derive our incomes from output and we would not want those incomes to fall.


Glossary

Reading
assistance


Figure 1. A ZWL 100 trillion note from Zimbabwe.

Credit: Getty Images Matthew_Miller

Student
view

Inflation is a symptom of a problem rather than a problem itself. What actually happens is that when money loses its value we see prices rise as a result. In other words, if a currency loses half of its value, double the amount of the currency will be needed to buy the same goods and services.

We have observed very high rates of inflation during important times throughout history, notably in Germany in the 1920s, in Zimbabwe during the 1990s and 2000s, or most recently in the decline of Venezuela. In all three cases, there was more money circulating in the economy and no sizable increase in output, so the purchasing power of money fell. This is not the kind of inflation that would affect us today, however, and so we must look a little further. When rates of inflation exceed 50% per month it can be considered hyperinflation. In 2019, the IMF estimated (<https://www.imf.org/external/datamapper/PCPIPCH@WEO/WEOWORLD/VEN>) that the Venezuelan bolivar was inflating at more than 15 000% annually. Some estimates have placed that number even higher.

🔗 Making connections

Inflation is a well-known phenomenon and politicians know the impact it can have on the economy. In cases of hyperinflation, why haven't politicians taken the steps needed to control the inflation? What other reasons might they have **not** to control inflation?

Measuring the inflation rate

As with unemployment, trying to measure inflation is very problematic. Most countries aim to measure inflation every month, and you can imagine how difficult it must be to measure price changes for every good sold at every outlet in the country. Instead, government statistics agencies calculate what is known as a consumer price index (CPI).

Calculating a price index involves selecting a basket of typical goods and services that are bought in the economy by the typical family (usually, two adults and two children). The prices of these are then recorded at a selected number of outlets and an average price change is then calculated. The goods that are purchased more frequently will carry more weight in the basket and therefore will have a greater impact on the calculated inflation. Goods with highly volatile prices, such as petrol (gasoline), may be excluded from the typical basket. Different countries will have a different basket of goods. For instance, Australia does include petrol (gasoline) in their CPI calculation.

Constructing a price index in this way makes it much easier to see how prices change over time. Prices may rise and fall, but prices for different items have changed at different rates and some of these will have a greater impact on consumers' lives than others. For example, increasing costs in housing will play a much larger role in people's lives than increasing costs of entertainment.

The CPI will usually show inflation as, for most countries, prices are rising year on year. However, it does not rise by the same amount each year and so we have to consider if inflation is slowing. When the rate of inflation reduces, but still remains positive, it is known as disinflation.

The limitations of the CPI in measuring inflation

There are many problems with calculating inflation using a consumer price index. There are four main difficulties:

1. Selection of goods: What do you consider to be a 'typical' household? Countries are made up of people from different cultures, income brackets and ages, who live in different parts of the country. Governments will calculate inflation regardless of these differences in the population, so the statistics can only provide us with limited information about how individuals are really affected.

1. Differences in income distribution: As mentioned above, calculations of inflation ignore different income groups. This is of particular importance to those on lower incomes, who spend larger proportions of their incomes on essential items such as food, rent and utilities. With less of a buffer of savings or assets to support them during difficult times, a rise in inflation will make covering those essentials more difficult.



1. Changes in consumption patterns: Every so often the basket of typical goods and services will need to be reviewed to remove and/or include goods that are relevant to the population at that time. For example, coffee is now increasingly popular in busy cities, and food trends constantly change. Things like videotapes and camera film will no longer be included in calculations, but streaming services will.

1. Changes in quality over time: Inflation is only concerned with changes in prices, but of course over time goods and services improve in terms of quality. With improvements in productivity and technology, prices for certain types of goods may fall over time. A reduction in inflation may, therefore, be due to improvements in quality, but may be interpreted as a bad thing, as it usually indicates economic activity slowing down.

Different items experience more volatility in price than others and this is due to different impacts of different types of elasticity , which was covered in the subtopic 2.6. When measuring inflation, statisticians can leave out certain goods if they want to ascertain an underlying rate of inflation. This is also known as the **core rate of inflation**, and usually removes food and energy prices as these tend to experience the most swings.



Figure 2. Goods no longer included in inflation statistics.

Credit: Getty Images PM Images

As mentioned previously, statisticians also construct a Producer Price Index (PPI) to learn about what happens to the costs that firms encounter. This can be helpful to understand what is happening to the factors of production, and as you know from studying aggregate supply, costs of production can be extremely important in determining the health of an economy. Producer price changes will also feed into consumer prices eventually, so measuring PPI will help us to know what we can expect in the coming period.



Calculating CPI with different quantities as weights

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the CPI

The CPI is used to measure the value of a typical basket of goods and services consumed by a typical household. For example, the typical household in Bulgaria buys 15 kg of bread, 3 kg of cheese and 7 kg of vegetables each month. The prices of these goods in 2017, 2018 and 2019 are given in the table below.

Table 1. A sample basket of consumption of a household in Bulgaria per month.

Goods	Quantity (per month)	Price in 2017 (BGN)	Price in 2018 (BGN)	Price in 2019 (BGN)
Bread	15	1	1.5	2
Cheese	3	7	9	11
Vegetables	7	5	4	6
Cost of monthly basket		71	77.5	105

To calculate the CPI, we will use the quantity as weights. The first step will be to multiply the quantity by the prices to find how much the monthly basket value is in each year.

The cost of the monthly basket for 2017 will be:

$$(15 \times 1) + (3 \times 7) + (7 \times 5) = 15 + 21 + 35 = \text{BGN } 71.$$

The cost of the monthly basket for 2018 was:

$$\text{— } (15 \times 1.5) + (3 \times 9) + (7 \times 4) = 22.5 + 27 + 28 = \text{BGN } 77.5.$$



The cost of the monthly basket for 2019 was:

$$(15 \times 2) + (3 \times 11) + (7 \times 6) = 30 + 33 + 42 = \text{BGN } 105$$

We can now calculate the CPI by using the formula:

$$\frac{\text{cost of the basket in year}}{\text{cost of basket in base year}} \times 100$$

For example, if we accept 2017 as the base year, then the CPI for 2017 will be:

$$\frac{71}{71} \times 100 = 100\%$$

The CPI for 2018 will be: $\frac{77.5}{71} \times 100 = 109.15\%$

The CPI for 2019 (2017 is still the base year) will be: $\frac{105}{71} \times 100 = 147.88\%$

Once we have calculated the CPI, we can use it to calculate the inflation rate with 2017 still used as the base year:

[Home](#) 109.15% – 100 = 9.15%. So in 2018, the prices of the goods and services in the basket increased by 9.15%.

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147.88% – 100% = 47.88%. So between 2017 and 2019, the increase in the prices of the goods in the basket was 47.88%.

We can calculate the CPI for 2019 with 2018 as the base year, in order to check how much prices increased in the year 2019 only.

$$\text{CPI for 2019} = \frac{105}{77.5} \times 100 = 135.45\%$$

The inflation rate between 2018 and 2019 is therefore 35.45%, so prices in the year 2019 have increased by 35.45% compared to prices in 2018.

Causes of inflation

There are two main types of inflation that you need to learn about. One is a natural consequence of economic growth, and the other can be very disruptive to economic activity. We have seen both already when we looked at aggregate demand and aggregate supply .

Demand-pull inflation

Demand-pull inflation occurs when there is an increase in aggregate demand in the economy. In order to supply the increased number of goods and services now required, higher prices are needed. In **Figure 3**, a simple aggregate supply and demand diagram, we see that a shift in aggregate demand to the right causes a movement along the SRAS curve. The general price level rises from P_1 to P_2 as the output in the economy rises from Y_{fe} to Y_1 .

It is important to note that there are differences between the new classical and Keynesian perspectives about whether or not demand-pull inflation will occur. You might think that demand-pull inflation is associated with economic growth and is a good thing. According to the new classical theory, increases in aggregate demand are followed by upward pressure on wages, so there will be no increase in output in the long run.

Student view

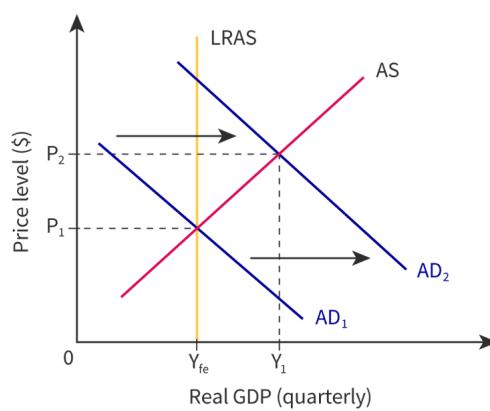


Figure 3. Demand-pull inflation.

[More information for figure 3](#)

The graph illustrates demand-pull inflation through an aggregate supply (AS) and aggregate demand (AD) model. The X-axis represents the Real GDP (quarterly), while the Y-axis shows the Price level in dollars (\$). The graph includes several key curves: the Aggregate Supply (AS) curve, the Long Run Aggregate Supply (LRAS) represented by a vertical line, and two Aggregate Demand curves labeled AD₁ and AD₂. The graph shows an initial equilibrium at

price level P_1 and real GDP at Y_{fe} , where the AD_1 curve intersects the AS curve. The shift from AD_1 to AD_2 highlights an increase in aggregate demand, resulting in a higher equilibrium price level, P_2 , and a greater Real GDP Y_1 . This movement is illustrative of the concept of demand-pull inflation, where increased demand pushes prices upward when the economy approaches full capacity.

[Generated by AI]

According to the Keynesian theory, not all increases in aggregate demand cause prices to increase. If the economy is operating at an equilibrium below full employment, then there is spare capacity in the economy and prices will not have to rise. It is only when resources are fully or nearing fully employed, having to be allocated between competing uses, that we see prices rise.

① Exam tip

The shape of the Keynesian curve and the issue of the inflation versus growth trade-off is one you will often see in some form or another. Understanding how the shape of the Keynesian curve can determine the effectiveness of demand-side policy is crucial to answering these questions fully.

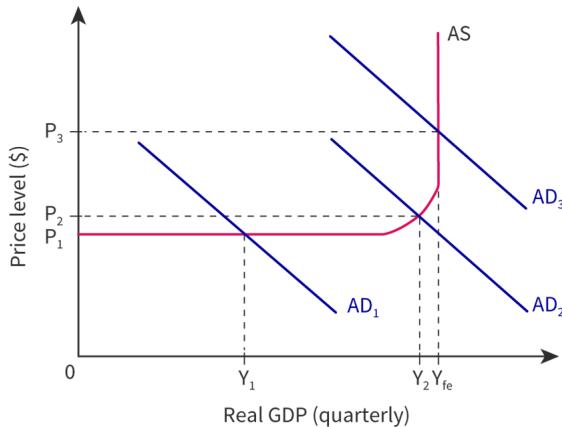


Figure 4. Demand-pull inflation using Keynesian AD/AS.

More information for figure 4

The graph depicts the Keynesian aggregate demand/aggregate supply (AD/AS) model illustrating demand-pull inflation. The X-axis represents Real GDP on a quarterly basis, with specific points labeled as Y_1 , Y_2 , and Y_{fe} . The Y-axis signifies Price Level (\$) with points P_1 , P_2 , and P_3 . Three downward sloping aggregate demand curves (AD_1 , AD_2 , AD_3) and one backward bending aggregate supply curve (AS) are shown. As the AD curves shift outward from AD_1 to AD_3 , they intersect the AS curve at higher price levels, demonstrating how increased demand leads to rising prices and potential inflation.

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Worked example 1



Economic growth does not always lead to inflation. Using an AD/AS diagram, try to find ways to show economic growth taking place that causes prices to rise, fall and remain unchanged.

Overview

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Remember that AD and AS can move at the same time. Depending on how fast these two grow with respect to each other, they will yield different results for growth and inflation.

Inflationary growth will occur when aggregate demand growth outstrips aggregate supply growth in the economy.

Non-inflationary growth will occur when aggregate supply and aggregate demand growth are keeping pace with each other. This is an ideal situation, and confidence won't be eroded by inflation.

Deflationary growth will take place when aggregate supply growth is faster than growth in aggregate demand. This is also positive, and might be the result of improved productivity within a country.

Look at the graph below to see all three types of growth!

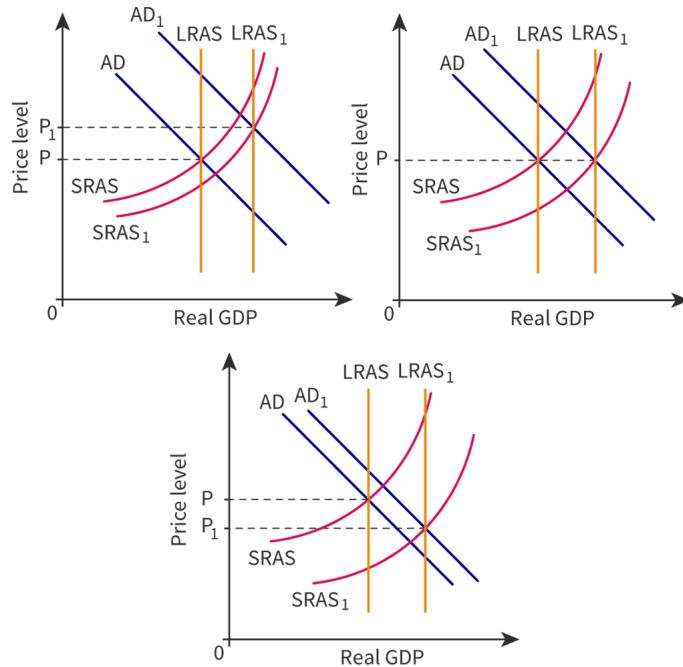


Figure 5. Three types of growth.



Student view



Cost-push inflation

Cost-push inflation occurs when aggregate supply falls. This will always be caused by an increase in the costs of production or a sharp disruption in the availability of the factors of production. There are many factors that may cause cost-push inflation, including war, natural disasters, changes to minimum wage laws, increases in the cost of imported raw materials and business regulations that apply to all firms in a country.

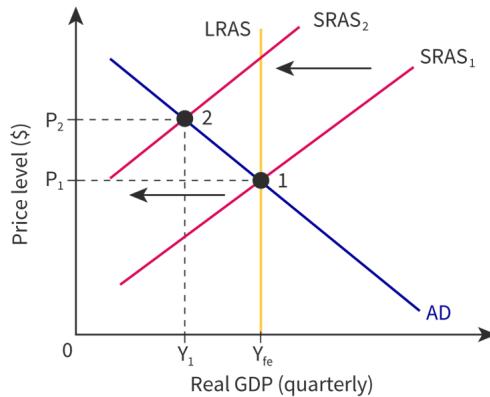


Figure 6. Cost-push inflation.

More information for figure 6

The graph illustrates cost-push inflation through an aggregate supply and demand diagram. The X-axis represents Real GDP (quarterly), while the Y-axis indicates the Price level (\$). The graph features three main curves: the long-run aggregate supply (LRAS), the initial short-run aggregate supply (SRAS₁), and the shifted short-run aggregate supply (SRAS₂). Initially, the SRAS curve shifts left from SRAS₁ to SRAS₂, leading to an increased price level from P₁ to P₂, as shown along the vertical axis. This shift also indicates a decrease in real GDP from Y_{fe} to Y₁, pointing to a movement along the Aggregate Demand (AD) curve. This scenario reflects increased production costs, such as rising oil prices, causing unemployment and higher consumer prices due to decreased aggregate supply. The graph's intersection points further highlight changes between supply levels and associated price impacts.

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Using a simple aggregate supply and demand diagram (**Figure 6**) once more, a shift to the left of the SRAS curve from SRAS₁ to SRAS₂ shows a movement along the AD curve. As costs of production rise, for example as a result of rising oil prices, there may be an increase in unemployment and prices may rise to P₂ in order to cover these higher costs. A higher price level in the economy caused by the shift in supply will lead consumers to demand less.

Student view

① Exam tip

The new classical diagram does lend itself to representation a little better than the Keynesian curve here because you can use a short-run macro equilibrium diagram. For expediency and accuracy, it is recommended to stick with this diagram.

Inflationary wage—price spiral

The two types of inflation described above can also act in unison, causing significant problems in the economy if allowed to run out of control. When a rise in aggregate demand puts upward pressure on the price level of goods and services, workers will start to demand higher wages from their employers. Because higher wages result in higher costs of production for firms, the result is a fall in short-run aggregate supply.

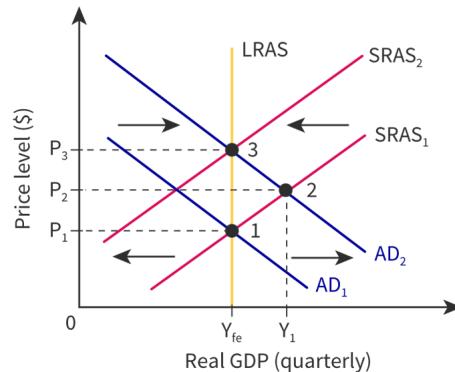


Figure 7. An inflationary wage-price spiral.

More information for figure 7

The image is a graph illustrating the concept of inflationary wage-price spiral by showing the relationship between price level and real GDP. The graph features an X-axis labeled "Real GDP (quarterly)" and a Y-axis labeled "Price level (\$)". On the graph, there are several lines and markers:
 - A vertical line labeled "LRAS" representing Long-Run Aggregate Supply.
 - Two downward sloping lines represent Aggregate Demand, labeled "AD₁" and "AD₂".
 - Two upward sloping lines represent Short-Run Aggregate Supply, labeled "SRAS₁" and "SRAS₂".
 - The intersections on the graph are marked by points 1, 2, and 3, where the curves intersect.
 - Points on the Y-axis denote different price levels labeled "P₁", "P₂", and "P₃" that correspond to the points of intersection in relation to shifts in SRAS and AD.
 - Similarly, a point on the X-axis marked "Y_{fe}" for Long-Run Equilibrium output and "Y₁" showcasing short term equilibrium with varying demand and supply.
 - Arrows on the graph provide a visual indication of the shifts in AD and SRAS curves over the sequential points of intersection.

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To new classical economists, this situation is to be avoided and any attempt to stimulate aggregate demand will only ever result in this type of inflation without any increase in national income.



Keynesian economists also view too much inflation as a bad thing when aggregate demand starts to rise along the vertical portion of the AS curve.

Costs of a high inflation rate

To many policymakers, a low and stable rate of inflation is the most important objective to achieve for the economy. A high rate of inflation creates an uncertain environment for economic activity and erodes confidence among all participants in the economy. There are six main costs of a high rate of inflation:

- 1. Greater uncertainty:** A high rate of inflation makes it very difficult for businesses to plan for the future and for individuals to plan for their financial security. New business start-ups or plans for expansion require a lot of preparation in order to provide information to owners and creditors. They will have to include pricing information and profit estimates for the future. Doing this is impossible if prices change substantially or quickly.

1. Redistributive effects: Because low-income households spend larger proportions of their earnings on essential goods, inflation will affect them more than households on higher incomes.

1. Effects on saving: When you deposit your money in a bank, you will receive a small payment in the form of interest. The bank has borrowed your money to lend to others and pays back interest as a reward for saving. The interest rate is also known as the cost of borrowing money. When inflation exceeds the interest rate in a country, the value of savings decreases over time. Lower real interest rates may cause people to stop saving.

1. Damage to export competitiveness: A high rate of inflation relative to trade partners may cause demand for exports to reduce as foreign prices are rising more slowly than domestic prices. This may have severe consequences if the economy is heavily dependent on its trade balance, such as in Japan or China.

1. Impact on economic growth: As uncertainty in the economy mounts and as the purchasing power of wages becomes eroded, both suppliers and consumers will tend to pull back on their economic activity. Both of these will cause a decrease in real GDP and growth.

1. Inefficient resource allocation: As markets dictate the allocation of resources by relying on the price mechanism, during inflationary periods this mechanism goes awry. Producers will not know if increases in prices are caused by increased demand or by inflationary pressures and will no longer have a clear idea of which resources to procure and produce.

① Exam tip

Past Paper 1 questions have asked you to discuss which costs of inflation are the most significant. You can mention new classical economists who are very concerned with the impact of inflation on confidence in the economy and on planned investment spending. How significant each theoretical consequence is for a country will depend on structural issues, such as how much people save (in Asia more than in Europe) or how much net export contributes to aggregate demand.

Complete section with 4 questions

Start questions

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Next section ➤ (/study/app/pp/s



Deflation, disinflation and its costs

Section

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Deflation is the decrease of price level over time. While this may seem like a positive thing, it will have some negative effects on an economy. Deflation is the decrease in the average price level over time and should not be confused with disinflation, the slowing of the inflation rate over time. Deflation will mean that the price level compared to past years is not just growing more slowly, but is in fact less than it had been previously.



Glossary

Reading
assistance

Causes of deflation

It is important to distinguish between deflation caused by improved productivity and deflation caused by persistent decline in economic activity. In the former case, it may be desirable that prices fall over time, especially if incomes remain unchanged or increase at the same time.

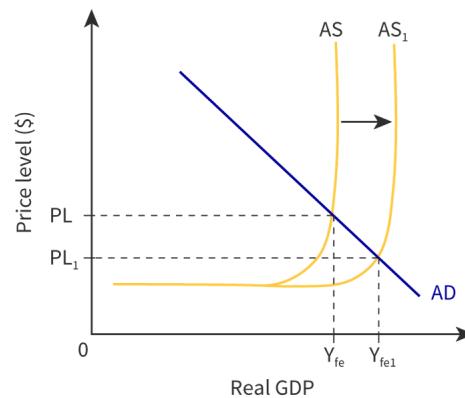


Figure 1. Increasing AS resulting in falling price level.

[More information for figure 1](#)

The graph illustrates the relationship between Real GDP and Price Level in an aggregate supply (AS) and aggregate demand (AD) model. The X-axis represents Real GDP, while the Y-axis indicates the Price Level in dollars. The AD curve is shown in blue and slopes downward, indicating a negative relationship between price level and GDP. Two AS curves appear in the graph, labeled AS and AS₁, both plotted in yellow. The original AS curve is more to the left, while the AS₁ curve has shifted to the right, signifying an increase in aggregate supply. The shift from AS to AS₁ is highlighted with an arrow pointing rightward, suggesting that innovation or productivity has increased, allowing for more output at every price level. This results in a new intersection point with the AD curve that is lower on the price level axis. Two horizontal dashed lines extend from the curves to the Y-axis, labeled as PL and PL₁, showing the decrease in price level from PL to PL₁ as the AS curve shifts. Two vertical dashed lines extend from the curves to the X-axis, indicating the full employment output levels, marked as Y_{fe} and Y_{fe1}.

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For example, the steam engine dramatically lowered costs of production during the Industrial Revolution, and the Internet has done the same since the 1990s. These types of innovations cause the AS curve to shift outwards. We can see this in **Figure 1** as AS shifts rightward to AS_1 . In fact, this type of deflation implies that all factors of production are employed and the economy is trying to find better ways of making use of them, with innovation enabling prices to come down, as seen in **Figure 1** in the fall in price level from P_L to P_{L1} .

Deflation may increase export competitiveness and cause a subsequent increase in demand for exports, which can be beneficial for the economy. In addition, savers will find that the value of their savings has effectively increased and they are better off than they were before, with more purchasing power.

Deflation can also be caused by lower costs of production or improvements in technology. Falling oil prices can have the effect of lowering costs of production and shifting the $SRAS_1$ rightwards to $SRAS_2$, which will lead to lower average prices in the economy. While lower costs of production impact the SRAS, improvements in technology will have a long-term effect and will impact the LRAS by shifting it outward. You can see the effect of lower costs of production in **Figure 2** below.

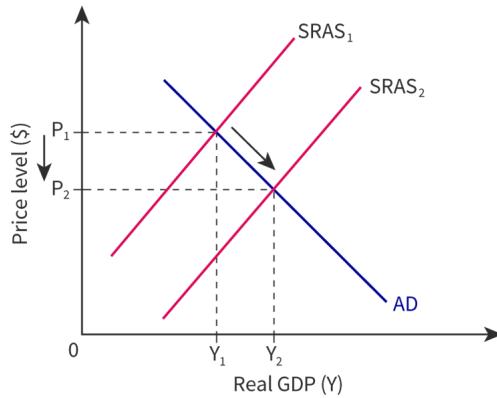


Figure 2. Falling prices lower production costs and result in a lower price level.

More information for figure 2



The graph illustrates shifts in both the short-run aggregate supply (SRAS) and the aggregate demand (AD) in an economy. The X-axis represents Real GDP (Y), and the Y-axis represents the Price Level (\$). Two supply curves, labeled as $SRAS_1$ and $SRAS_2$, are drawn from left to right, indicating a rightward shift. The aggregate demand curve (AD) is downward sloping from left to right.

Initial price level is at P_1 with corresponding GDP at Y_1 , intersecting the $SRAS_1$ and AD curves. The $SRAS_1$ shifts rightward to $SRAS_2$ due to a decrease in production costs. The new intersection point occurs at a lower price level, P_2 , and an increased GDP, Y_2 , indicating the effect of lower production costs by deflation.

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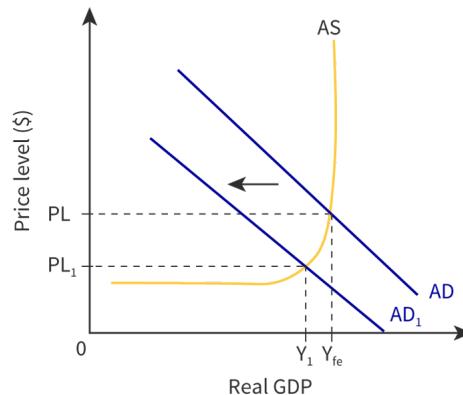


Figure 3. Falling AD results in a falling price level.

More information for figure 3

The image is a graph depicting the relationship between Real GDP and Price Level. The vertical axis represents the Price Level in dollars, and the horizontal axis represents Real GDP. The graph includes two Aggregate Demand (AD) curves, labeled 'AD' and 'AD₁', showing a leftward shift, indicating a decrease in Aggregate Demand. Additionally, there is an Aggregate Supply (AS) curve, which is non-linear, becoming steeper at higher levels of GDP.

Illustrated are two price levels, 'PL' and 'PL₁', where 'PL₁' is lower than 'PL,' corresponding to the shift in Aggregate Demand. The graph also marks two GDP levels, 'Y₁' and 'Y_{fe}', with 'Y₁' being less than 'Y_{fe}.' This shift demonstrates a move from a full employment level of output ('Y_{fe}') to an output level below full employment ('Y₁'), indicating an economy operating below its potential due to decreased demand.

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However, deflation that is the result of a fall in aggregate demand is very painful for businesses to endure, and it also leads to a fall in incomes. We can see this in **Figure 3** as AD shifts leftward to AD₁ and the price level falls from PL to PL₁. Here, resources are not employed fully, and an excess supply of goods and labour causes prices to fall in an attempt to restore balance and get rid of the surplus. Because firms are always reluctant to lower prices, and workers are unlikely to accept lower wages, deflation in a country is often a sign of significant distress.

Disinflation and deflation

Deflation is not very common in the real world as it is a rare occasion to see the general price level in the economy falling. This is due to several reasons:

1. Wages do not normally fall and wages represent the bigger proportion of the costs of production. Therefore, firms will avoid lowering their prices as this will cut into their profits.
1. Large multinational firms operating in an oligopolistic market might fear a price war. They will not be very keen on lowering their prices as this will largely reduce their profits.



Overview

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1. Frequent price changes are undesirable as firms will incur high 'menu costs' if they have to change their prices too often.

Disinflation is different from deflation and should be clearly distinguished. While deflation indicates a falling general price level, disinflation indicates falling rates of inflation or that the general price level is increasing at a slower rate. EU countries have an inflation target of 2% annual inflation rate. During the period of 2012–2014 (↗ <https://www.ft.com/content/ee12cf52-a84a-11e3-a946-00144feab7de>), the Eurozone experienced disinflation as the inflation rate became as low as 0.5%. The dangers with disinflation are that it can quickly lead to deflation as consumers will delay their spending in the expectation of prices falling even further. The government uses a variety of monetary and fiscal policy tools to prevent the general price level falling too low and thus to prevent deflation.

Be aware

It is important to distinguish between disinflation and deflation. Disinflation means that there is still inflation and prices are still increasing, but at a slower rate than before. Deflation means that the average price level is decreasing.

Costs of deflation

There are several direct costs of demand-deficient deflation, which include the following:

1. **Business uncertainty:** As with inflation, a deflationary period can cause uncertainty in the business community on the outlook for investment. Many firms will be hesitant to expand in a period of falling prices and revenues. These firms will also delay capital investments for the same reasons consumers might delay consumption, such as the anticipation of lower prices in the future and lower costs.



Student view

1. **Redistributive effects :** With a falling general level of prices, the winners will be individuals on fixed incomes, as they will now be able to afford to buy more goods and services. Lenders, such as banks, will also benefit from deflation as borrowers will have to pay back their loans but the purchasing power of money has increased. Borrowers and payers of fixed incomes, such as the government, will lose as they must pay amounts of money that have increasing real value.

1. **Deferred consumption:** As prices begin to fall, consumers will delay consumption. This might happen because of the real and potential decrease in wages during a deflationary period. Labour is a factor of production and as deflation takes hold, firms may attempt to decrease labour costs to compensate for decreased revenue. Consumers might also delay consumption as they anticipate lower prices in the future. This is especially the case with expensive durable goods, such as the purchase of a new home or a car.



1. High levels of cyclical unemployment: Deflation often indicates falling economic output as firms try to lower prices to entice consumers to start spending money again. Under these circumstances, incomes and wages may be falling and this further dampens demand in the country. This is known as a downward wage–price spiral. This may become exacerbated because consumers delay purchases to wait for further price decreases. In addition, the real value of any debt held by consumers and investors increases, and so borrowing in the economy falls.

1. Bankruptcies: Firms may be forced to lower prices to continue selling similar volumes of production, significantly affecting their profitability. As mentioned, the real value of any outstanding debt also increases, making it more difficult to repay those debts. Although different countries have different laws regarding bankruptcy, we will likely see an increase in the number of firms going bankrupt or into administration during times of recession.

1. Increase in the real value of debt: Public and private debts increase in real value as deflation occurs, as the size of the debt relative to incomes increases. This can be a major problem for individuals, businesses and governments as they all will have loans to repay. As real debt levels rise, some will be unable to pay their loans and others will be reluctant to borrow more money to spend or invest.

1. Inefficient resource allocation: With businesses and consumers slowing down their patterns of consumption and investment, the allocation of resources will begin to give market signals that further encourage savings and discourage spending, resulting in an inefficient resource allocation. This is because consumers will expect prices to decrease further and so will postpone their spending on non-essential goods and services. The price level distorted by deflation will give signals to businesses to change their production to essential goods and services. This will further reduce prices of those and decrease profits.

1. Policy ineffectiveness: Surrounding all of this is policy uncertainty for governments and central banks. In deflationary periods, governments may decide to use expansionary fiscal policies and central banks may institute expansionary monetary policies. Even so, it might still be hard to convince consumers and businesses to borrow more money in order to consume and invest when prices are trending downwards.

Complete section with 3 questions

Start questions



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Next section ➤ (/study/app/pp/sid-186-cid-754025/bc)



Student
view



Relative costs of unemployment versus inflation

Section

[Feedback](#)


Low and stable inflation and low unemployment are among the major macro objectives of governments. Whether these two objectives can be achieved simultaneously has been a point of debate among economists.

There is a direct relationship between wages and prices. In times of high employment, the labour market has fewer employees available to be hired for work and businesses start increasing the wages offered. These higher wages increase the production costs of businesses. The increased costs are passed onto the consumers as higher prices of goods and services, which causes inflation. Thus, there appears to be a trade-off between low unemployment and low inflation.

Should low inflation or low unemployment be the primary macro objective of the government?

The major benefits of low inflation are that businesses will be more confident and undertake investment, which will increase the production possibilities of the economy and will ensure economic growth in the future. But if the rate of economic growth exceeds the long-term trend of growth, it is likely that it will be unsustainable in the long run and will be followed by a recession. A low and stable inflation rate will help prevent the cyclical fluctuations of a boom and recession in the economy. This happened in the UK in the 1980s and 1990s when the economy was growing too fast and the inflation rate increased to 10%. This period was followed by a period of recession after an increase in the interest rates to lower the inflation rate.

Another consequence for the UK at this time was that UK exports, due to the high inflation rate, became uncompetitive on the world market. This caused a fall in demand for UK exports and possibly a deterioration in the current account of its [balance of payments](#) (/study/app/pp/sid-186-cid-754025/book/the-big-picture-id-30345/).

In the EU, after the global recession of 2008, the European Central Bank (ECB) was persistent in keeping a tight monetary policy despite the ongoing recession in the EU and low economic growth. The inflation rate was kept low, within the target of 2% or below, at the cost of rising unemployment, which was over 12% in 2014 for the Eurozone and even higher in some Southern states (such as Greece with 27.2% as of January 2014 and Spain with 24.5%).



Figure 4. Unemployment rate as percentage of labour force.

Source: [Eurostat](https://ec.europa.eu/eurostat/tgm/graph.do?tab=graph&plugin=1&pcode=tec00118&language=en&toolbox=data)

[More information for figure 4](#)

The graph represents the unemployment rate as a percentage of the labor force from 2000 to 2014. The X-axis displays the years from 2000 to 2014, while the Y-axis shows the unemployment rate percentage ranging from 7% to 12%. The line graph indicates fluctuations in the unemployment rate over this period. Starting in 2000, the rate was around 9%, decreasing to about 8% in 2001. It gradually fell to its lowest point around 7.2% in 2002, then rose again, peaking near 10.5% around 2004. From there, it decreased slightly until 2008 when a sharp increase began, reaching a peak of approximately 12% in 2013, and slightly declining by 2014. The overall trend shows significant fluctuations with notable peaks around 2004 and 2013.

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According to some economists, unemployment has much higher social costs than inflation. A moderate inflation rate of 4–5% has limited economic and social implications, such as some savers seeing a decrease in the real value of their savings. However, long-term unemployment can cause serious social problems such as [social protests](#) (<https://www.reuters.com/article/us-greece-unemployment/greeks-protest-job-cuts-unemployment-hits-new-high-idUSBRE96A0H020130711>) and political extremism.

In 2020, the global COVID-19 pandemic is presenting new challenges to policy makers. Most countries are experiencing increases in unemployment and disinflation. There is a fear of global recession. Households are being hit by job losses and governments around the world are trying to cushion the increase in unemployment with temporary government-funded work schemes and one-off grants of money to their citizens.

Potential conflict between macroeconomic objectives

Macroeconomic goals can sometimes cause potential conflict with one another. In a case where AD is shifting rightward, this should result in real GDP increasing and higher employment. However, if AD increases too much, inflation may become a threat as the full employment level is reached. Governments then have to make a decision. Do they allow inflation to reach full employment or do they lower inflation but then risk greater unemployment? The answer is not simple and depending on the set of circumstances within a society, governments will make decisions that best suit their economies.

Low unemployment and low inflation



Low unemployment is generally achieved when the economy experiences a period of boom. Then, labour resources are engaged at and beyond the full employment level. This will cause increased consumption in the economy, which will lead to higher prices. As already mentioned above, when the labour market has insufficient labour, businesses will offer higher wages to gain extra labour for production. These higher wages represent increases in the production costs. These costs are then passed onto the consumers as higher prices. Increases in the general price level cause inflation to rise as well, at least in the short run. In order for the government to achieve the macro objectives of low unemployment and low and stable inflation, monetary and fiscal policies need to be used. Governments also need to prioritise their macro objectives and consider how to balance between these two conflicting objectives.

High economic growth and low inflation

Economic growth is achieved as the total national output increases and factors of production reach higher levels of employment. This may occur either with a rightward shift of the AD curve or a rightward shift of the AS curve in some cases. With a rightward shift of AD, ceteris paribus, the economy will begin to see some increase in the price level as full employment is reached and factors of production become more scarce. Policy makers then face a trade-off: increased economic growth and price level rises, or decreasing economic growth to contain inflation. These levels are constantly monitored by government and central bank authorities to produce the most optimal trade-off.



If the growth of AD occurs faster than the growth of productive capacity in the economy, the economic growth will exceed the long-run trend of the economy. This growth is unsustainable and will only lead to an increase in the price level.

On the other hand, if the economic growth is due to a long-term increase of the LRAS (because the production capacity of the economy is increasing faster than the AD), then the government can simultaneously achieve the macro objectives of growth and low inflation. In this case, an increase in the productive capacity of the economy will not cause inflation.

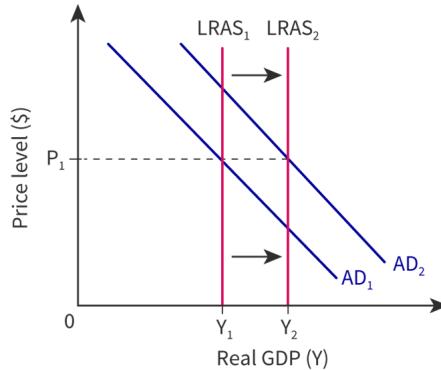


Figure 1. Economic growth with low inflation.

More information for figure 1

The graph illustrates economic relationships between price levels and real GDP, showing shifts in both Aggregate Demand (AD) and Long-Run Aggregate Supply (LRAS). The X-axis represents Real GDP labeled as 'Y', displaying two points: Y1 and Y2. The Y-axis represents Price Level in dollars, marked by a horizontal line labeled P1.

Two downward sloping blue lines indicate Aggregate Demand, labeled AD1 and AD2, showing a rightward shift from AD1 to AD2. Two vertical magenta lines represent Long-Run Aggregate Supply, shifting right from LRAS1 to LRAS2, indicating economic growth without significant inflation. The graph uses arrows to illustrate these shifts, suggesting a scenario of economic growth accompanied by low inflation. The overall trend depicted is that with an increase in real GDP, there is a stabilizing price level, suggesting efficiency gains in the economy.

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Student view

High economic growth and environmental sustainability

Economic growth is achieved by using the factors of production in the most efficient way possible in order to produce the most output of goods and services. Many developing economies will have to make a trade-off to achieve greater economic growth with less focus on environmental sustainability. This will likely mean higher incomes for their citizens and potentially a better standard of living in the short term. However, even in the world's most efficient economies, there will be conflicts between growth and sustainability as resources are gathered, goods and services are produced, and the waste products of consumption are taken care of.

Whether high economic growth and environmental sustainability are conflicting objectives has been a topic of debate among economists. In accordance with the Environmental Kuznets curve (EKC), as income rises, environmental degradation also rises up to a certain level, which is the turning point, and then it starts to fall. Many developed countries now find themselves in the second half of the curve. Developing nations aim at economic growth in order to increase their citizens' incomes despite the environmental degradation that this may cause. However, some economists argue that

[Home](#) with green technology becoming more available and affordable, and policy makers focusing their attention on sustainable development, economic growth alongside environmental sustainability could be more attainable for developing countries.

Overview
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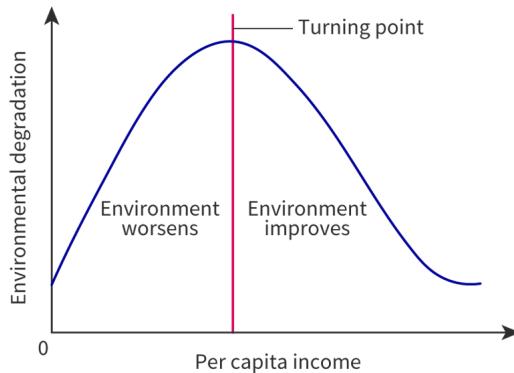


Figure 2. The environmental Kuznets curve (EKC).

Source: "Environmental Kuznets Curve (https://commons.wikimedia.org/wiki/File:Environmental_Kuznets_Curve.png)" by Govinddelhi is licensed under CC BY 3.0 (<https://creativecommons.org/licenses/by/3.0/deed.en>)

[More information for figure 2](#)

This graph illustrates the Environmental Kuznets Curve (EKC), showing the relationship between environmental degradation and per capita income. The X-axis represents per capita income, ranging from low to high. The Y-axis indicates environmental degradation, from low to high. The curve initially rises, suggesting that environmental degradation worsens as income increases. A labeled vertical line marks the 'turning point', beyond which the curve begins to decline, indicating environmental improvement as income continues to grow.

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There are several factors that determine the successful resolution of the economic growth–environmental sustainability dilemma. These include:

[Student view](#)

- Corruption: the more corrupt a country is, the weaker the enforcement of government environmental policies.
- Foreign direct investment (FDI): FDI ensures the introduction of new industries into the market, which will have major spillover effects. Current technologies and knowledge are brought in, which can help modernise the economy and improve productivity and efficiency. Evidence from China shows that FDI helped relieve environmental pressure due to the new spillover effects of new technologies.
- International trade: trade increases growth, but alongside strong sustainable development policies, it can also bring new technology and increase efficiency instead of causing deterioration of the environment.

Overall, there is no agreement that the two macro goals of economic growth and environmental sustainability are conflicting. This is because there is sufficient evidence that economic growth can be achieved alongside environmental preservation.

High economic growth and equity in income distribution

Equity in the distribution of income suggests that people are paid fairly for their work effort, which is different from equality in the distribution of income, which suggests that people are paid the same. However, in most countries around the world, equity in the income distribution is interpreted as greater income equality.

Economic growth might create a gap in the equity of income distribution, but there is no clear link by which this happens. There is a hypothesis that economic growth will always lead to increased inequity in income distribution. This is because wealth and other assets are unevenly distributed in market economies and the rich benefit the most from the growth of the economy. Another reason for this is the differences in the skills of labour. The highly skilled always benefit more from growth than the unskilled labour.

However, there are some empirical studies which also show that economic growth can improve income distribution equity. This can happen if the lowest wages rise faster than the average wage, which will help to close the gap between rich and poor. Government benefits for unemployment, sickness or pensions can also increase in line with economic growth. Economic growth can also reduce the level of unemployment, as it will create jobs and more people will be able to earn decent incomes. The taxation policy of the government also plays a major role in income distribution, as progressive taxation will ensure that the high-income earners contribute more to the government budget than the low-income earners.

Recent studies  (<https://www.google.com/url?q=https://www.oecd-ilibrary.org/docserver/9789264246010-en.pdf?Expires=1594050080&Id=3Did%26accname%3Dguest%26checksum%3DA338399851AADF0D5851F7675085AF05&safesearch=1&safe=1&allowScriptRunning=1&rel=0>) also suggest that inequitable distribution of income can also hinder growth. Higher inequity in income distribution will lead to greater government intervention and higher taxation. This will decrease the rate of return on investment in assets and restrict capital accumulation, which, in turn, will lower economic growth. Highly inequitable income distribution can cause social conflicts and political instability as those on the lowest incomes might be more likely to engage in criminal activities, thus increasing the uncertainty in the economy and threatening property rights. This will reduce investment and economic growth. Greater inequality in income distribution can also negatively affect long-term growth, especially in countries where education is not provided by the government, as poor people will be unable to afford education for their children and this will affect the quality of the labour force in the future. A more equitable income distribution reduces poverty and leads to higher human development and educational attainment, which is a precondition for economic growth.

Exam tip

There have been Paper 1 questions where you are asked to discuss whether inflation or deflation is a bigger economic problem. You can use the economic perspectives (such as new classical versus Keynesian) to answer this, or you can contrast the consequences of inflation and deflation. You might argue that the answer depends on the type of inflation.

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**Section****Feedback**

Constructing a weighted price index is an important skill and is relevant for calculating the terms of trade in later sections of the syllabus. Here, we are going to calculate the CPI for a fictitious basket of goods in Argentina. The base year will be 2018.

Table 1. The weights and price for goods in Argentina (in pesos).

	Weight in basket	Price in 2018	Price in 2019	Price in 2020
Food	50	12	19	21
Clothing	15	30	26	27
Recreation	35	15	17	19

$$\text{Index value} = \frac{\text{Price basket of year } x}{\text{Price basket in base year}} \times 100$$

In 2018: $\frac{1575}{1575} \times 100 = 100$

In 2019: $\frac{1935}{1575} \times 100 = 122.86$

In 2020: $\frac{2120}{1575} \times 100 = 134.6$



We can now see that prices have risen 22.86% from 2018 to 2019, and 34.60% between 2018 and 2020. However, it would be a mistake to think that the inflation rate between 2019 and 2020 would be the difference between the index values. This is because the inflation rate is a ratio, based on multiplication, not a difference, based on subtraction. To find annual inflation, we need to do one more calculation.

$$\text{Inflation rate} = \frac{(\text{index value in year } x) - (\text{index value in base year})}{\text{index value in base year}} \times 100$$

Using the formula above and the index data calculated earlier, we can complete the following calculations:

In 2019:

$$\frac{122.86 - 100}{100} \times 100 = 22.86$$

In 2020:

$$\frac{134.60 - 122.86}{122.86} \times 100 = 9.55$$

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Inflation occurred during both 2019 and 2020, as the numbers are greater than zero. However, in 2020, disinflation occurred too. We cannot calculate inflation for 2018 because we would need the information for 2017, which we do not have.

Table 2. The weights and prices for goods in Argentina (in pesos).

Goods or service	Weighted (%)	Price in 2017	Price in 2018	Price in 2019
Food	40%	500	560	610
Rent	40%	400	450	500
Clothes	10%	200	250	230
Entertainment	7%	200	150	120
Haircuts	3%	100	120	130
Total price of basket	N/A	397	443.1	479.3
Inflation rate	N/A	100	111.61 Inflation rate 11.61%	120.73 Inflation rate 20.73 from 2017

First, we need to calculate the value of the basket in each year, so we multiply the weight in the basket by the price of each good by the following formula:

$$(Price 1 \times weight) + (price 2 \times weight) + \dots = \text{value of the basket for a year}$$

2017: A household has spent the following for the year:

Student view

CPI for 2017:

$$(500 \times 0.4) + (400 \times 0.4) + (200 \times 0.1) + (200 \times 0.07) + (100 \times 0.03) = 200 + 160 + 20 + 14 + 3 = 397 \text{ pesos.}$$

CPI for 2018:

$$(560 \times 0.4) + (450 \times 0.4) + (250 \times 0.1) + (150 \times 0.07) + (120 \times 0.03) = 224 + 180 + 25 + 10.5 + 3.6 = 443.1$$

CPI for 2019:

$$(610 \times 0.4) + (500 \times 0.4) + (230 \times 0.1) + (120 \times 0.07) + (130 \times 0.03) = 244 + 200 + 23 + 8.4 + 3.9 = 479.3$$

Once we have found the total value of the basket of goods, we can calculate the inflation rate with the base year 2017 considered as 100%.

To find out the inflation rate for 2018, we need to calculate:

$\left(\frac{443.1}{397} \right) \times 100 = 111.61\%$, which shows that the inflation rate for 2018 is 11.61%. The prices of goods and services in the basket have risen 11.61% from 2017 to 2018.

The inflation rate for 2019 is calculated in the same way:

$\left(\frac{479.3}{397} \right) \times 100 = 120.73\%$, so the inflation rate for 2019 compared with 2017 (our base year) is 20.73%.

This means that the prices of the goods and services in the basket have risen 20.73% from 2017 to 2019.

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Deficits and debt (HL)

Section

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[Notebook](#) To understand the government's policies in response to various macroeconomic goals, you will also need a good understanding of government budget, surpluses, deficits and debt.


[Glossary](#)


[Reading assistance](#) Governments will finance their spending through a number of income streams, such as the sale of goods and services from national companies like the postal service, rail network, or national parks. They can also receive income through the sale of government or state-owned property or through various stamp duties. However, the main source of income for governments comes from taxing personal and business incomes.

During periods of economic growth, this will mean that government revenues increase as incomes increase for individuals and businesses. However, during periods of lower economic growth, governments are faced with a conundrum. As tax revenues begin to decrease, along with a dip in economic activity, the pressure on governments to spend on automatic stabilisers such as unemployment benefits, welfare and other programmes also begins to increase.

Measurement of government (national) debt as a percentage of GDP

Government debt is measured as a percentage of GDP and is a key indicator for the sustainability of government finance. The formula by which the debt-to-GDP ratio is calculated is below:

$$\text{Debt-to-GDP ratio} = \frac{\text{debt}}{\text{GDP}}$$

where:



Debt is the cumulative liabilities of the government

GDP is the total value of goods and services produced over a given period, usually a year.

The higher the ratio, the less likely it is for a country to be able to repay its debt.



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Figure 1. Government debt for selected countries (2015).

More information for figure 1

A vertical bar chart from the OECD website presents general government debt as a percentage of Gross Domestic Product (GDP) for various countries in 2015. The interactive chart allows users to compare data points across various nations, with each bar representing a country's value in a particular dataset. The horizontal axis lists country names and the vertical axis represents the GDP in percentage, helping to indicate the magnitude of differences among countries.

The interface consists of a series of uniformly colored vertical bars, each corresponding to a country. The height of each bar represents the data value, allowing for easy visual comparison. The bars are sorted in ascending order from left to right. Estonia, with 13% of GDP, has the lowest value, whereas Japan, with 237% of GDP, has the highest in 2015. The chart highlights significant variations, suggesting potential economic, social, or policy-driven factors influencing these differences.

The table below shows the general government debt as a percentage of GDP for various countries in 2015.

General government debt as a percentage of GDP in 2015	Countries
13	Estonia
24	Chile
31	Luxembourg
33	Turkey
40	Norway
43	Switzerland
44	Latvia
52	Czech Republic -
53	Mexico
53	Denmark
54	Lithuania
62	Sweden



Student
view

General government debt as a percentage of GDP in 2015	Countries
64	Australia
66	Slovak Republic
69	Colombia
70	Poland
75	Finland
77	Israel
80	Netherlands
81	Germany
88	Ireland
99	Hungary
101	Austria
102	Slovenia
113	United Kingdom
115	Canada
117	Spain
121	France
126	Belgium
136	United States
148	Portugal
157	Italy
184	Greece
237	Japan

A high debt-to-GDP ratio is undesirable as it means that the country is more likely to default on (or stop paying) its loans to international financial institutions. The World Bank conducted a study (<https://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-5391>) and concluded that a debt ratio higher than 77% for an extended period of time may result in an adverse impact on economic growth.

The ratio for Greece as of 2017 was 182% and the country had to be bailed out by Germany, the reason being that foreign governments and banks held a lot of Greece's debt.

The US debt-to-GDP ratio in 2017 was 79% but, unlike Greece, the US can simply print more dollars to pay off its debt. Thus, the risk of default is very low but debt creditors will see devaluation of their money. This will make them avoid US bonds. When the returns on government bonds are low, it shows that investors are confident in demand for the government debt. When the return on bonds gets high, this means that the investors avoid the debt because it is risky and so the government is ready to promise higher returns to raise money.

Relationship between a budget deficit and government (national) debt

The government may face what is called a budget deficit if it cannot gain enough in revenue to cover its budget for the year. A budget deficit is when expenditures by governments exceed revenues or, in other words, when the government is spending more than it is taking in during a given year. This will often happen in recessionary periods as governments are reluctant to raise taxes, but they will also spend more on social safety nets. Governments are increasingly running regular deficits, since taking on debt in the short-term is seen as beneficial for long-term economic growth. For example, in February 2020, the US budget deficit amounted to USD 625 billion.

Be aware

Some students confuse government budget deficits and surpluses with the deficits and surpluses that may occur because of trade under the current account in the balance of payments. While the concept of a surplus or deficit of funds is the same, the reasons and application are different.

Government borrowing helps to finance programmes that will make the nation more economically healthy and productive in future. When economic productivity and incomes are high, the debt can then be paid back. The vast majority of deficit spending is done through the issuing of bonds with fixed periods of maturity and interest. The debt will be paid back in the future to the holders of those bonds, who, in the meantime, receive interest for their investment in the government bond.



Figure 2. Bonds are used by governments to fund deficit spending in the present.

Credit: Getty Images richcano

Interest on the bonds is determined by the market's perception of the issuing government's ability to pay back the debt. Countries that are seen as credible and likely to pay back their debts will not need to pay high interest rates to attract the investment in their bonds. This is why we see countries like [the UK, Japan and](https://tradingeconomics.com/bonds)

Germany having low or even negative interest rates on their bonds. Those with more risk associated with their bonds will need to offer higher rates of interest: for example, Brazil, India or Mexico. Bonds are also rated for reliability by companies, such as Moody's or Standard and Poor (S&P).

In the short term, governments may borrow money through bonds and spend to support citizens' economic activity in the nation. If these deficits continue year after year, a national debt will grow, such as we can see here in the UK ↗ (<https://www.nationaldebtclock.co.uk/>).

Costs of a high government (national) debt

Many people view debt as a problem, but is it really? We should consider the reasons for the debt, the alternative scenario if the debt was not taken on, and the future ability to pay back the debt, including the ongoing interest. You may recall learning about opportunity costs and trade-offs in subtopic 1.1. This is what we need to consider when examining the costs of a high government debt.

Debt servicing costs

As the debt-to-GDP ratio increases, the government will have to spend more of its budget on servicing the debt: that is, paying the interest to the creditors. In recent years the US government has spent more than USD 1 billion per day on interest payments. Over the next 10 years, the US Congressional Budget Office estimates that the interest costs will amount to USD 5.9 trillion. As more money is diverted to servicing the debt, there will be less money left for investment in areas that are important for economic growth.

Credit ratings

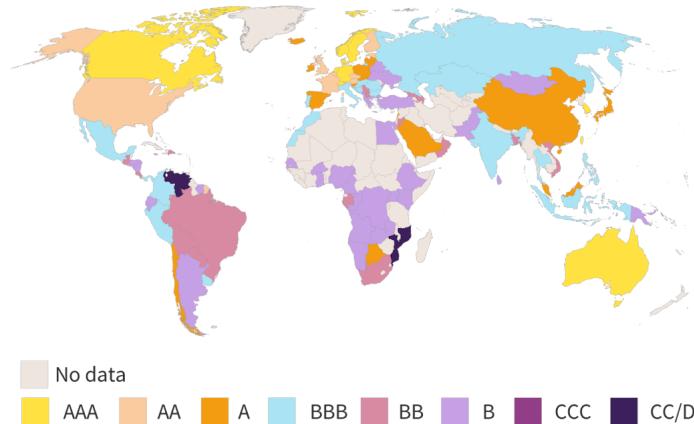


Figure 3. A map illustrating countries with high AAA credit ratings from S&P, such as Canada, Norway and Australia, and lower CC/D ratings, such as Venezuela and Mozambique.

Source: "Countries by Standard & Poor's Foreign Rating"

(https://commons.wikimedia.org/wiki/File:Countries_by_Standard_%26_Poor%27s_Foreign_Rating.png) by Norvikk is licensed under CC BY-SA 4.0 (<https://creativecommons.org/licenses/by-sa/4.0/deed.en>)

ⓘ More information for figure 3

There are several agencies in the world which determine the credit ratings of a country's bonds. The most famous ones are Standard and Poor, Moody's, and Fitch. The credit ratings present an assessment of a government's ability to repay its public debt, including the principal and the interest over time. Rating agencies use qualitative measures to estimate the probability of default (non-payment) in the future.



Impacts on future taxation and government spending

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The opportunity cost of debt is the future spending that the money going towards paying the debt and interest could have been used for by governments. This will mean that in the future, government debt will have to be serviced by future increases in national income, or GDP, and possibly a future increase in taxes or a diversion of spending from one programme to another. Increases in debt will mean increased taxes in the future and less ability for the government to spend on areas such as education and health care, which are important for society.



The trade-offs in present and future spending, as well as the opportunity cost of servicing a debt, are great points for answering evaluation command prompts.

Sustainable level of government debt as a percentage of GDP

So how much debt is too much? This question is hard to answer, but many look at the debt-to-GDP ratio to find some understanding. In 2009, Greece experienced a debt crisis after the 2008 financial crash. Borrowers became worried that Greek debt levels, which peaked at 179% of GDP (<https://ec.europa.eu/eurostat/tgm/refreshTableAction.do?tab=table&plugin=1&pcode=teina225&language=en>), were too high, causing Greece to have to raise its interest rates on newly-issued 10-year bonds as high as 39% in 2012 (<https://tradingeconomics.com/greece/government-bond-yield>) to attract investors and continue borrowing. Meanwhile, in the same period, Japanese debt levels were more than 225% of GDP (<https://tradingeconomics.com/japan/government-debt-to-gdp>) while rates on Japanese newly-issued 10-year bonds were at less than 1.25% (<https://tradingeconomics.com/japan/government-bond-yield>) in the same period. This is because debt and the ability to serve it is assessed by investors. Since Japan has had a long history of servicing its debt, investors do not see it as risky, whereas investors in Greek bonds in 2012 saw those bonds as carrying a lot of risk of non-repayment.



So how do we know if the debt is sustainable ↗ (<https://www.weforum.org/agenda/2019/12/the-art-of-assessing-public-debt-sustainability-relevance-simplicity-transparency/>)? There are a few key indicators that can be considered that will give a better idea about the sustainability of national debt. The first is political stability. Debts need to be paid back by governments. If the government looks unstable, that would risk the repayment of the debt. The second is the composition of the debt. Who is it owed to and for how long? Both of these could explain why the large Japanese national debt has not been a bigger concern. Japan has a stable government and almost 90% ↗ (<https://www.marketwatch.com/story/heres-a-lesson-from-japan-about-the-threat-of-a-us-debt-crisis-2018-05-14>) of the debt is owed internally, to its own citizens. Finally, is the country vulnerable to external shocks? For example, countries that rely on a trade surplus ↗ (<https://www.cnbc.com/2020/04/23/how-the-oil-price-capitulation-will-hit-nigeria-saudi-arabia-and-other-major-exporters.html>) to generate large portions of GDP might be considered vulnerable, while those that generate GDP through consumption may not.

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3. Macroeconomics / 3.3 Macroeconomic objectives

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A.W. Phillips, a former London School of Economics professor from New Zealand, had a reputation for wanting to know how things worked and was known for his inventions as a child and young man. This included a contraption installed on the front of his bicycle so that he could read on his long journey to and from school each day. The invention that made him famous was the Monetary National Income Analogue Computer, or the MONIAC. This was based on the circular flow of income theory prominent at that time, and was a machine that could demonstrate how money flowed through the economy when certain parameters (such as saving and government spending) were set.

Phillips also spent a long time studying the relationship between inflation and unemployment and developed a very simple theory that provided a lot of support for the mainstream Keynesian theory during the 1950s. He used inflation and unemployment data from the United Kingdom from 1861 to 1957 to construct his idea.

The short-run Phillips curve

With economic growth, we should see a fall in the unemployment rate as more labour is needed in the economy. As economic growth speeds up, we should also see an increase in the inflation rate as labour and other factors become relatively more scarce and prices rise. The Phillips curve is the unemployment rate plotted against the inflation rate, as shown in **Figure 1a**. As the economy grows and aggregate demand rises, we move from equilibrium 1 to 2 to 3 (**Figure 1b**), with increasing rates of inflation and falling rates of unemployment as GDP rises.

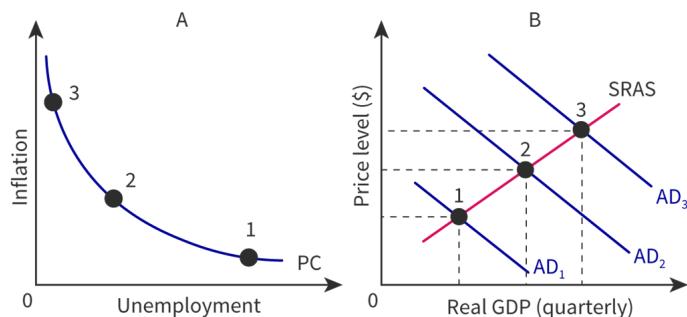


Figure 1a. The Phillips curve. **Figure 1b.** Shifts in aggregate demand with the growing economy (corresponding movements shown along the Phillips curve).

[More information for figure 1](#)

The image displays two graphs. On the left, the Phillips curve is shown with Inflation on the Y-axis and Unemployment on the X-axis. The curve is labeled 'PC' and slopes downward, indicating an inverse relationship between inflation and unemployment. Three points are marked on the curve: 1 at low inflation and high unemployment, 2 at moderate levels, and 3 at high inflation and low unemployment.

On the right, there is a graph of Price level on the Y-axis and Real GDP (quarterly) on the X-axis. The graph shows shifts in aggregate demand (AD) with three different lines labeled AD₁, AD₂, and AD₃, each representing a higher level of aggregate demand. Three intersections are shown with a Short Run Aggregate Supply line (SRAS), marked at points 1, 2, and 3. These points illustrate movement towards higher price levels and GDP as AD increases.

The validity of this theory depends on the one vital assumption that aggregate supply remains constant. We know this is not always true, but it did hold true during the post-war period until the 1970s. As oil prices rose from 1973 onwards, and economies experienced inflation and unemployment at the same time, economists struggled to explain what was happening. If we plot inflation and unemployment from 1950 to the present day on a graph, you will see that the original Phillips curve theory does not hold.

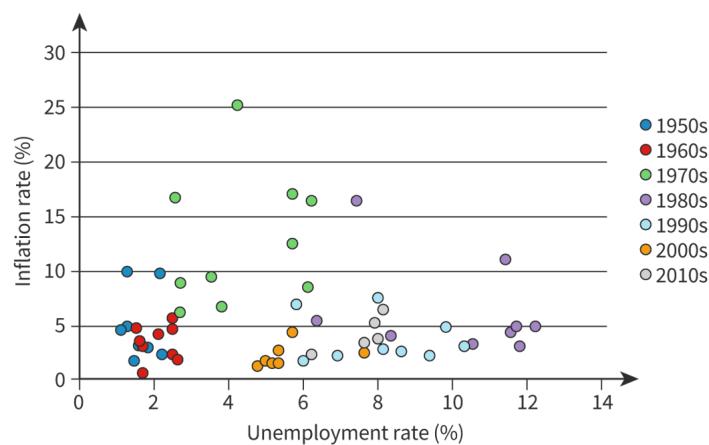


Figure 3. Unemployment and inflation data for the United Kingdom

Source: ONS [ONS](https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/l55o/mrn23) (<https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/l55o/mrn23>)

More information for figure 3

The image is a scatter plot graph displaying unemployment rates versus inflation rates in the United Kingdom over several decades, from the 1950s to the 2010s. The X-axis represents the unemployment rate in percentage, ranging from 0% to 14%. The Y-axis shows the inflation rate in percentage, ranging from 0% to 30%. Each decade is depicted with different colored dots: blue for the 1950s, red for the 1960s, green for the 1970s, purple for the 1980s, light blue for the 1990s, orange for the 2000s, and grey for the 2010s.

The plot shows varying clusters of dots representing different decades. During the 1950s and 1960s, blue and red dots cluster around lower inflation rates under 10% and lower unemployment rates, generally below 5%. The 1970s green dots are more dispersed, showing higher inflation rates reaching over 20%, with varying levels of unemployment under 8%. In the 1980s, purple dots also show spread patterns but remain below 15% inflation and vary in unemployment up to 14%. Later decades, the 1990s to the 2010s, exhibit lower inflation rates, mostly below 10%, and varied unemployment rates, with many dots between 6% to 12% unemployment. Overall, the scattering of dots suggests shifts in the Phillips curve across these decades.

[Generated by AI]

Instead of there being one Phillips curve, the data suggest that the Phillips curve can shift. This corresponds with shifts in aggregate supply as costs of production were affected by the oil price spikes in the 1970s. If we draw the Phillips curve and an AD/AS diagram side by side (**Figure 2a and 2b**), it is easier to see why this is true.

The long-run Phillips curve

Milton Friedman used the Phillips curve to his advantage to provide support for his new classical ideas. He argued that fluctuations in economic activity caused by increases in aggregate demand will only exist in the short run.

As aggregate demand rises, we move along the short-run Phillips curve (SRPC) from position 1 to position 2 in **Figure 2a**. This corresponds with the shift to the right of aggregate demand from AD_1 to AD_2 in **Figure 2b**. Although this will cause a temporary increase in output from Y_{fe} to Y_1 and a fall in the unemployment rate, Friedman argued that the upward pressure on the price level will lead to workers demanding higher wages.

As higher wages constitute increased production costs, aggregate supply will shift to the left from $SRAS_1$ to $SRAS_2$ and the Phillips curve will shift to $SRPC_2$. This phenomenon, where upward pressure on prices also puts pressure on wages, is called the wage–price spiral. In addition, unemployment will return to the natural rate of unemployment, consisting of structural, seasonal and frictional unemployment, given by the long-run Phillips curve (LRPC) in **Figure 2a**. This puts us at position 3 in both graphs, and demonstrates why monetarists think expansion on the demand side will result in inflation.

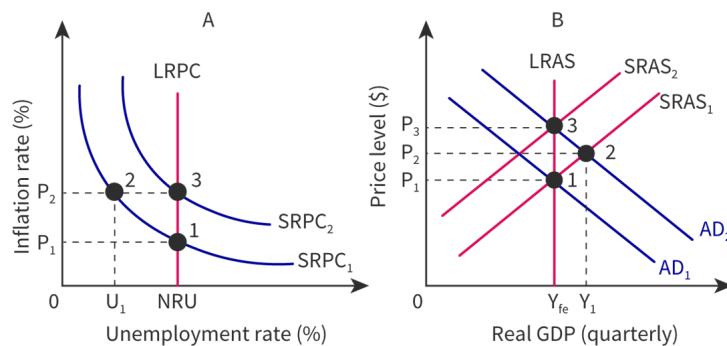


Figure 2a. The long-run Phillips curve. **Figure 2b.** Upward wage-price spiral in the economy.

More information for figure 2

The image contains two graphs labeled A and B. Graph A on the left shows the Phillips curve relationship between the unemployment rate (x-axis) and inflation rate (y-axis) in percentage. There are curves labeled LRPC (Long-Run Phillips Curve), SRPC₁, and SRPC₂. Three points are marked: 1 at a higher inflation rate and low unemployment, 2 at a medium inflation rate and higher unemployment, and 3 at a reduced inflation rate approaching the natural rate of unemployment (NRU). It's noted that as wages increase, the graph shows SRPC shifting from SRPC₁ to SRPC₂, indicating a wage–price spiral.

Graph B on the right illustrates the interactions between price level (y-axis) measured in dollars and real GDP (x-axis) measured quarterly. Lines represent LRAS (Long-Run Aggregate Supply), SRAS₁, SRAS₂, AD₁ (Aggregate Demand), and AD₂ showing shifts in supply and demand. Three points are identified: 1 where SRAS₁ and AD₁ intersect, 2 at the intersection of SRAS₁ and AD₂, and 3 where SRAS₂ and AD₂ meet, representing economic equilibria under different conditions of aggregate demand and supply shifts.

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This addition to the Phillips curve provided support for the new classical view that governments should not intervene with demand-side policies to help the economy grow, contrary to Keynesian ideas. Instead, the focus should be on reducing structural unemployment with longer-term policies. In fact, seven Nobel prizes have been won for work critical of the original Phillips curve.

! Exam tip

In your exams, questions in Paper 1 will often ask what the main priority should be for the government, or the extent to which different policies can achieve the macroeconomic objectives. As a Higher level student, you can use the Phillips curve to provide support for both perspectives, showing your ability to evaluate arguments in



reference to growth, employment and inflation.

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