

# 7 How the macroeconomy works — answers

## Test yourself

### Test yourself 7.1

To answer this question we see whether injections into the circular flow of income ( $I + G + X$ ) equal leakages or withdrawals from the circular flow ( $S + T + M$ ). Injections are £12bn + £6bn + £11bn, which equal £29bn. Leakages are £10bn + £8bn + £13bn, which equal £31bn. The net withdrawal of demand from the circular flow of income is thus £32bn – £31bn, which is £2bn.

### Test yourself 7.2

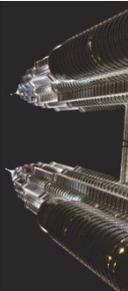
Neither of the first two statements can be concluded from the data. Without knowing the levels of income in 2012 and 1970, we cannot conclude that total personal savings were lower in 2012 than in 1970. Indeed, given the positive economic growth that took place in the USA between 1970 and 2012, this conclusion would be highly improbable. For similar reasons, without data on income in the USA, we cannot conclude that personal saving and income both fell in the USA over the whole data period. This leaves statement **C** as the correct answer. The data show that the US personal sector saved a smaller percentage of its income in 2005 than in 2010.

### Test yourself 7.3

Statement **A** provides a definition of the export multiplier. (Remember that there are separate multipliers for each of the components of aggregate demand: consumption, investment, government spending and exports.) By contrast, statement **B** relates to the accelerator and not to the multiplier, while statements **C** and **D** have nothing to do with the national income multiplier.

### Test yourself 7.4

- 1 The answer is 'no'. Net national income (NNI) equals gross national income (GNI) *after* replacement investment or capital consumption has been deducted. By contrast, gross domestic product (GDP) is the part of gross national income produced within the domestic economy, which means that income flows generated by assets owned by the country's residents, but located in other countries, are excluded.
- 2 Real national income comprises the actual goods and services produced in a country. Nominal national income is these goods and services measured at the current average price level in the year in question. Changes in real national income equal changes in nominal national income, adjusted for inflation.
- 3 Saving is the act of not spending income on consumption or imports. Investment is the purchase of, or demand for, capital goods by firms.
- 4 The equation  $AD = C + I + G + (X - M)$  sets out the components of aggregate demand ( $AD$ ). The components of aggregate demand are consumption ( $C$ ), investment ( $I$ ), government spending ( $G$ ), and net export demand ( $X - M$ ).
- 5 Deficient aggregate demand is a state of aggregate demand in which planned spending by households, firms, the government sector and the overseas sector is insufficient to employ all the available productive resources, including labour. The economy is producing inside its production possibility frontier and there is cyclical or demand-deficient unemployment.
- 6 On a graph which shows the average price level on the vertical axis of the diagram and real national output on the horizontal axis, the economy's long-run aggregate supply ( $LRAS$ )



curve is assumed to be vertical. This is because the *LRAS* curve is located above the economy's 'normal capacity' level of real national income or output. The economy is producing at its production potential or at full capacity. In this situation, an increase in aggregate demand leads to the price level rising, but with no effect, except a possible temporary effect, on the level of real output.

## Case studies

### Case study 7.1

- 1 First, there was the economic shock hitting the New Orleans areas in the USA following hurricane Katrina in 2005. Second, there was the devastation which occurred in the Indus Valley in Pakistan following a massive flood in 2010.
- 2 An example of a benign economic shock is the discovery and exploitation of a natural resource that can be cheaply extracted from the earth's crust without unleashing harmful side-effects. Many economists put the fracking of natural gas resources into this category. Fracking, or the fracturing of limestone, sandstone and shale to release the gas, started in the USA in the 1940s, but only really became significant and a major source of fossil fuel in recent years. Fracking has begun in the UK, but less favourable geological conditions and opposition from green groups and some landowners means that fracked gasses will contribute less to the UK economy. On a world-wide scale, there is also the long-term possibility that fracking will have the adverse effect of speeding up global warming.

### Case study 7.2

- 1 A *sub-prime borrower* is a person who is considered a higher-than-normal credit risk. Sub-prime borrowers typically have a below-average credit history and are penalised for their poor credit rating with having to pay higher interest rates.

A *credit crunch* is a sudden sharp reduction in the availability of money or credit from banks and other lenders. Investment capital becomes difficult to obtain and banks become wary of lending funds to corporations, which drives up the price of borrowing.

*Negative equity* is a situation in which what people *owe* is greater than what they *own*.

- 2 To answer this question, access either the Halifax House Price Index or the Nationwide House Price Index on the internet. The table below shows house price changes from quarter 1 in 2012 until quarter 1 in 2015, published in the Nationwide House Price Index.

1952 Q4 = 100	All house (UK)		
	Index	Price (£)	Annual change (%)
Q1 2012	8606.3	162,722	0.2
Q2 2012	8724.4	164,955	-1.1
Q3 2012	8669.1	163,910	-1.6
Q4 2012	8616.9	162,924	-1.1
Q1 2013	8623.9	163,056	0.2
Q2 2013	8848.1	167,294	1.4
Q3 2013	9039.7	170,918	4.3
Q4 2013	9226.3	174,444	7.1
Q1 2014	9420.9	178,124	9.2
Q2 2014	9866.2	186,544	11.5
Q3 2014	9986.1	188,810	10.5
Q4 2014	9996.2	189,002	8.3
Q1 2015	9973.1	188,566	5.9

### Case study 7.3

- 1 According to Figure 7.7 in Case Study 7.3, low nominal interest rates, which have been in existence since 2009, have been accompanied by a lower household savings ratio than was the case in the ‘boom’ years before 2008. The savings ratio fell from about 6% in 2002 to around zero in 2008, before rising to a range between about 8% in 2009 and 4% in 2012. When interpreting Figure 7.7, you should consider the likelihood that other factors such as the state of household confidence and precautionary factors have been more important than interest rates in determining the household savings ratio.
- 2 At the time of answering this question in June 2015, the most recently published ONS data on the household savings ratio recorded the ratio in Q2 2014 as 5.9%. At the time you read this answer, you can access more up-to-date data by Googling: saving ratio — dataset selector — ONS. When you do this, you will see that some of the calculations, particularly for 2008, are significantly different from those shown in Figure 7.7 in Case Study 7.3. Think why this might be so.

### Case study 7.4

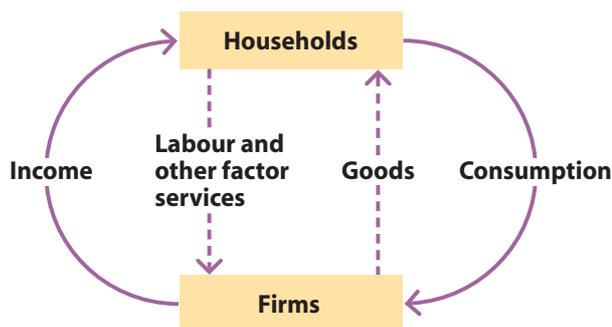
- 1 A takeover bid occurs when the bidder starts buying the shares of a public company or PLC in order eventually to possess sufficient shares to be in control of the company. For the bid to be successful the bidder does not need to own all the shares that will give him or her control. Rather the bidder needs to get existing shareholders such as pension funds and insurance companies to switch their allegiance to him or her and away from supporting the company’s incumbent board of directors. The word ‘hostile’ means that the incumbent board tries to reject the takeover bid, since it does not wish to lose control of the company. Finally, the word ‘leveraged’ means that the takeover bid is financed by borrowed funds. If the takeover bid is successful, the debt used to finance the takeover bid may be added to the victim company’s debt, in which case it is no longer the bidder’s debt. This is what happened when the Glazer brothers took over Manchester United football club in 2005, though this was not completely the result of a *hostile* takeover bid.
- 2 Asset stripping involves taking over a company which is likely to be in financial difficulties and with its share price consequently undervalued, and selling each of its assets separately at a profit without regard for the company’s future. For its detractors, asset stripping represents greed, short-termism and ‘making money rather than making things’. It has been called the ‘unacceptable face of capitalism’. For its supporters, it is part of the way in which a capitalist economy changes to meet new circumstances. In their view, asset stripping is part of a process through which under-performing assets are converted to more profitable use.

### Case study 7.5

- 1 Aggregate demand is the planned demand of all the economic agents in the economy (households, firms, the government sector and the overseas sector) for real output. The word ‘effective’ means that it is demand backed up by the means to pay for the output. It is usually stated in the equation:  $AD = C + I + G + (X - M)$ .
- 2 A main cause of why there may be too little effective aggregate demand in an economy is a collapse of consumer confidence and/or business confidence.

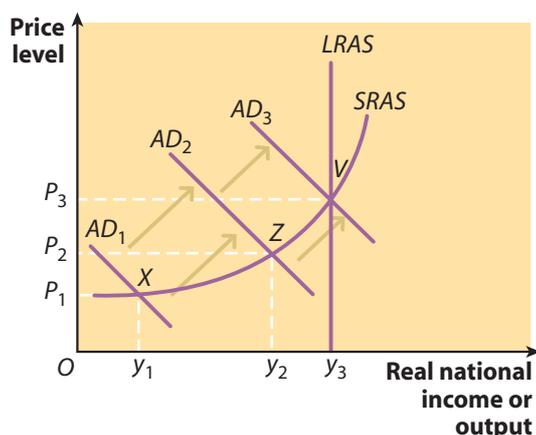
## Questions

- 1 The circular flow of income shows the movement of expenditure and income around the economy. In the economy, households provide the services of factors of production, such as capital and labour, to firms. Firms use these factors to produce goods and services which they sell to the households. (This is represented by the dashed vertical lines in the diagram below. The diagram is the same as Figure 7.2 in Chapter 7.)



The households spend money on the goods and services produced by firms. (This is represented by the right-hand half-circle loop in the diagram.) This money is then used by firms to pay the households for their work, through wages. (This is represented by the left-hand half-circle loop in the diagram.) The circular flow of income then repeats itself.

- 2 In the aggregate demand equation, the components of aggregate demand are shown to the right of the equality sign:  $AD = C + I + G + (X - M)$ . The diagram below, which is the same as Figure 8.21 in Chapter 8, shows how an increase in exports ( $X$ ) affects the position of the  $AD$  curve and equilibrium national income.



The accompanying text in Chapter 8, page 224, states:

the increase in exports shifts the  $AD$  curve to the right. What happens next in the economy depends on the shape and slope of the  $SRAS$  curve around the initial point of macroeconomic equilibrium. In Figure 8.21, macroeconomic equilibrium is initially at point  $X$ , which shows the economy in deep recession, suffering from deficient aggregate demand. In this situation, any event that increases aggregate demand increases the level of real output in the economy and causes demand-deficient unemployment to fall. An increase in exports is just such an event, shifting the  $AD$  curve from  $AD_1$  to  $AD_2$ . This causes real output to rise from  $y_1$  to  $y_2$ , though at the cost of some inflation, since the price level rises from  $P_1$  to  $P_2$ .

Following the rightward shift of the aggregate demand curve to  $AD_2$ , macroeconomic equilibrium is now shown at point  $Z$ . As the  $SRAS$  curve becomes steeper, moving up the curve, the diagram tells us that the main effect of a further shift of the  $AD$  curve from  $AD_2$  to  $AD_3$  falls on the price level rather than on output and jobs. Output increases, from  $y_2$  to  $y_3$ , but the price level also increases to  $P_3$ . As full employment approaches, export demand becomes *inflationary* rather than *reflationary*.

Nevertheless, in this situation, the growth in export demand eliminates the demand deficiency previously existent in the economy. The economy ends up on its long-run aggregate supply ( $LRAS$ ) curve, with macroeconomic equilibrium at point  $V$ .

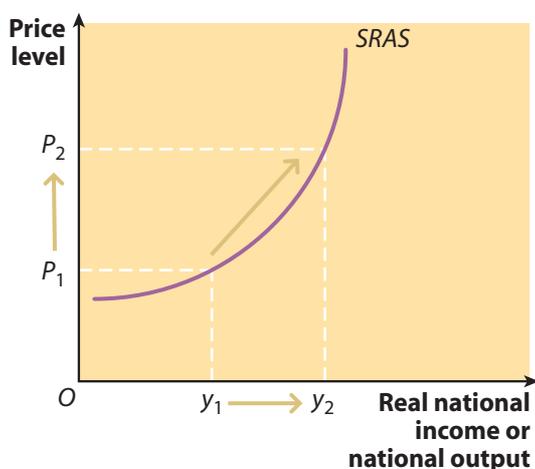
At point  $V$ , what happens next in the economy depends on assumptions made about the nature of short-run and long-run aggregate supply. In Figure 8.21, when the economy

produces on the vertical *LRAS* curve, any further increase in the demand for exports leads only to the price level rising above  $P_3$ , without any sustained increase in real output. However, there is another possibility. Foreign demand for a country's exports may be a response to favourable supply-side conditions in the domestic economy which shift the *LRAS* curve to the right. This means the economy can produce and supply the goods needed to meet the increase in export demand without generating inflation. This is the desired result of export-led growth.

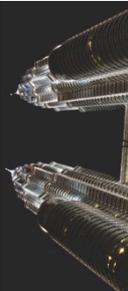
- 3 Saving is the opposite of consumption. At any level of income (assuming taxes and imports remain unchanged), an increase in consumption leads to a fall in saving, and vice versa. An increase in interest rates makes it more attractive to save and less attractive to consume. Likewise, a cut in interest rates makes it less attractive to save and more attractive to consume. However, an increase in interest rates, being a part of contractionary monetary policy, may cause both consumption and saving to fall. Likewise, a cut in interest rates, being a part of expansionary monetary policy, may cause both consumption and saving to increase. The result of interest changes depends also on whether we are considering real or nominal interest rates, and on the elasticity of the supply of savings with respect to changes in the rate of interest.
- 4 The national income multiplier measures the relationship between an initial change in one of the components of aggregate demand and the resulting change in national income. As stated in Chapter 7, page 178:

Suppose, for example, that government spending increases by £10 billion, but tax revenue remains unchanged. The resulting budget deficit initially injects £10 billion of new spending into the circular flow of income. This spending increases people's incomes. If we assume that everybody in the economy saves a small fraction of any income increase and spends the rest, the £10 billion generates multiple and successively smaller further increases in income, until the next stage is so small that it can be ignored. Adding up the successive stages of income generation, the total increase in income is a multiple of the initial spending increase of £10 billion — hence the name multiplier theory. If the size of the multiplier is 2.5, an increase in consumption spending of £10 billion causes national income to increase by £25 billion.

- 5 The slope of the *SRAS* curve, illustrated below in a diagram which is the same as Figure 7.12 in Chapter 7, is the result of two microeconomic assumptions about the nature of firms. These are that all firms aim to maximise profits and that, in the short run, the cost of producing extra units of output increases as firms produce more output.

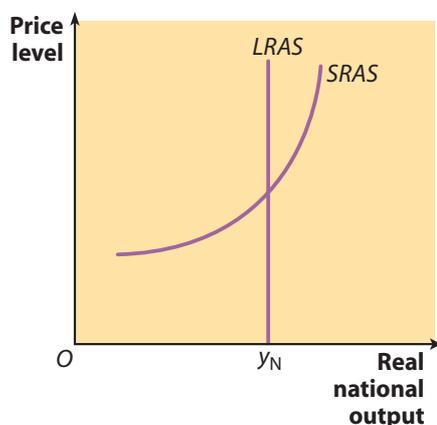


At the average price level  $P_1$  in the diagram, the level of real output that all the economy's firms are willing to produce and sell is  $y_1$ . To persuade the firms it is in their interest to produce the larger output of  $y_2$ , the price level must rise. This is because higher prices are needed to create the higher sales revenues needed to offset the higher production costs that

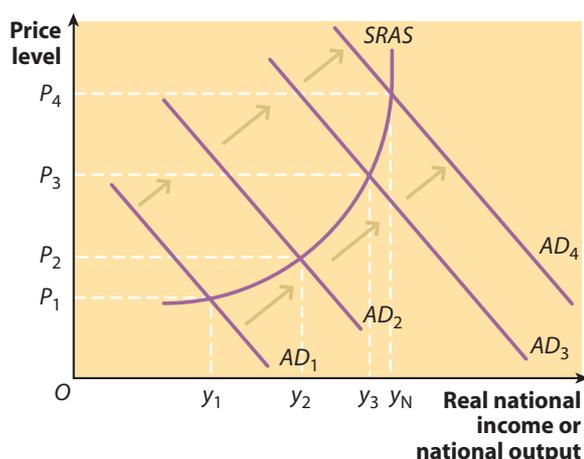


firms incur as they increase output, so that profits do not fall. The average price level has to rise to  $P_2$  in order to create conditions in which profit-maximising firms are willing and able to supply more output. If prices don't rise, it is not profitable to increase supply. Without a higher price level, profit-maximising firms, taken in aggregate, will not voluntarily increase the supply of real output.

Although, the *SRAS* curve is upward-sloping with respect to the average price level, the same is not true for the *LRAS* curve. In the long run, aggregate supply is *not* influenced by the price level. The vertical slope of the *LRAS* curve, drawn with the upward-sloping *SRAS* curve in the diagram below, is determined by the economy's production potential. Long-run aggregate supply is the maximum level of output that the economy can produce when the economy is on its production possibility frontier. The maximum or 'normal capacity' level of output,  $y_N$  in the diagram, is the same whatever the price level, hence the vertical slope of the *LRAS* curve. When producing  $y_N$ , the economy is producing at full potential. The position of the *LRAS* curve reflects the same factors that determine the position of the economy's production possibility frontier, such as the state of technical progress and the quantities and productivity of capital and labour and other factors of production.



- 6 The diagram drawn below illustrates how an increase in aggregate demand may affect output and the price level. As the *AD* curve shifts to the right along a non-linear *SRAS* curve, such as that illustrated in the diagram, whether or not real income or the price level increases depends on the steepness of slope of the *SRAS* curve.



When the *AD* curve shifts rightward from  $AD_1$  to  $AD_2$ , the resulting increase in real output is proportionately greater than the increase in the price level. Real income increases from  $y_1$  to  $y_2$  and the price level rises from  $P_1$  to  $P_2$ . This is because the *AD* curve is shifting along the relatively shallow section of the *SRAS* curve. But when the *AD* curve shifts rightward from

$AD_3$  to  $AD_4$ , it is shifting along a much steeper section of the  $SRAS$  curve. As a result, most of the effect of the increase in aggregate demand falls on the price level rather than on real output. The effect is inflationary rather than reflationary. Indeed, if the  $AD$  curve were to shift any further to the right beyond  $AD_4$ , the price level would rise, but not real output — except perhaps temporarily. In the diagram,  $y_N$  is the ‘normal capacity’ level of real output.

