

Edexcel

AS Level

Econ

(Code: WEC13 01)

Unit 02

Section 03 – Aggregate supply



Chapter 31 – Aggregate supply

THE SHORT-RUN AGGREGATE SUPPLY CURVE

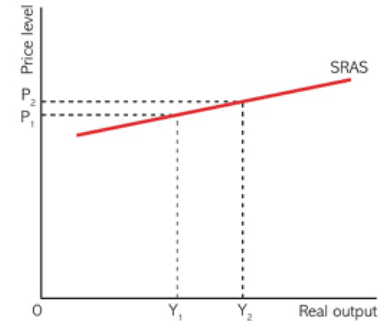
The macroeconomic supply curve is called the **aggregate supply curve**, because it is the sum of all the industry supply curves in the economy. In the short run, firms aim to increase their output by working their existing labor force more intensively, such as through overtime. They need to provide incentives for workers to work harder or longer hours, which can increase earnings and put up average and marginal costs per unit of output. In some sectors of the economy, where competition is imperfect and firms have the power to increase prices, the rise in labour costs will lead to a rise in prices. However, the increase in prices is likely to be small due to the constant prices for factor inputs.

Therefore, the **short-run aggregate supply curve** is relatively price elastic. This is shown in Figure 1. A movement along the curve, caused by an increase in real output, from Y_1 to Y_2 , leads to a small rise in the average price level from P_1 to P_2 .

FIGURE 1

The short-run aggregate supply curve

A change in real output, for example from Y_1 to Y_2 , will lead to a movement along the short-run aggregate supply curve. The slope of the SRAS line is very shallow because, while it is assumed that in the short-run wage rates are constant, firms will face some increased costs, such as overtime payments, when they increase output.



Source: adapted from www.oecd.org

SHIFTS IN THE SHORT-RUN AGGREGATE SUPPLY CURVE

The SRAS curve shows the relationship between aggregate output and the average price level, assuming that money wage rates in the economy are constant. A change in real output will lead to a movement along the SRAS curve and a change in the price level. But what if wage rates do change, or some other variable that affects aggregate supply changes? Then, just as in the microeconomic theory of the supply curve, the aggregate supply curve will shift.

Wage rates An increase in wage rates will result in firms facing increased costs of production. Some firms will respond by increasing prices. So at any given level of output, a rise in wage rates will lead to a rise in the average price level. This is shown in Figure 2 by a shift in the SRAS curve from $SRAS_1$ to $SRAS_2$.

Raw material prices A general fall in the prices of raw materials may occur. Perhaps world demand for commodities falls, or perhaps the value of the pound rises, making the price of imports cheaper. A fall in the price of raw materials will lower industrial costs and will lead to some firms reducing the prices of their products. Hence there will be a shift in the SRAS curve downwards. This is shown in Figure 2.

Taxation – An increase in the tax burden on industry will increase costs.

Exchange rates If the exchange rate falls, the price of imported goods is likely to rise. This will lead to an increase in prices throughout the economy. So a fall in the exchange rate will shift the short-run aggregate supply curve up from $SRAS_1$ to $SRAS_2$ in Figure 2.

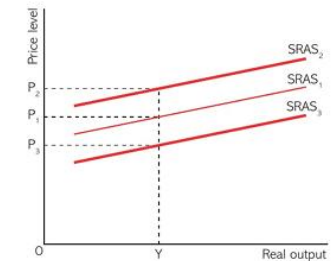
Productivity - Productivity is output per unit of input employed. So labour productivity is output per worker. Labour productivity is often measured as GDP per hour worked. Capital productivity is output per unit of capital employed.

Unit labour costs measures the average cost of labour per unit of output. So, if labour productivity rises and wages remain the same, unit labour costs will fall, so shifting the SRAS curve downwards.

FIGURE 2

Shifts in the short-run aggregate supply curve

The SRAS curve is drawn on the assumption that costs, in particular the wage rate, remain constant. A change in costs is shown by a shift in the curve. For instance, an increase in wage rates would push $SRAS_1$ up to $SRAS_2$ while a fall in wages rates would push the curve down to $SRAS_3$.



Source: adapted from www.oecd.org

When there is a large change in wage rates, raw material prices or taxation, a **supply-side shock** is said to occur. A supply-side shock, like a doubling of the price of oil, can have a significant impact on aggregate supply, pushing the SRAS curve upwards.

THE LONG-RUN AGGREGATE SUPPLY CURVE

In the short run, changes in wage rates or the price of raw materials have an effect on the aggregate supply curve, shifting the SRAS curve up or down. Equally, a rise in real output will lead to a movement along the SRAS curve.

In the long run, however, there is a limit to how much firms can increase their supply. They run into capacity constraints. There is a limit to the amount of labour that can be hired in an economy. Capital equipment is fixed in supply. Labour productivity has been maximised.

Figure 3 shows such a **vertical long-run aggregate supply curve** or LRAS curve. The LRAS curve shows the productive potential of the economy. It shows how much real output can be produced over a period of time with a given level of factor inputs, such as labour and capital equipment, and a given level of efficiency in combining these factor inputs. It can be linked to three other economic concepts.

The LRAS curve is the level of output associated with production on the production possibility frontier of an economy. In Figure 4, any point on the boundary AB is one that shows the level of real output shown by the LRAS curve.

- The LRAS curve represents the output level in an economy, indicating a long-term average rate of growth. An output gap exists when output is above or below this level. The UK economy, for instance, was operating close to its LRAS curve for most of its period, but experienced a deep recession in 2008, resulting in a large negative output gap. Economic forces act to bring GDP back to its trend rate of growth.

- The LRAS curve shows the level of **full capacity** output of the economy. At full capacity, there are no underused resources in the economy. Production is at its long-run maximum. In the short run, an economy might operate beyond full capacity, creating a positive **output gap**. However, this is unsustainable and the output in the economy must fall back to its full capacity levels.

SHIFTS IN THE LONG-RUN AGGREGATE SUPPLY CURVE

The LRAS curve is likely to shift over time. This is because the quantity and quality of economic resources changes over time, as does the way in which they are combined. These changes bring about changes in the productive potential of an economy.

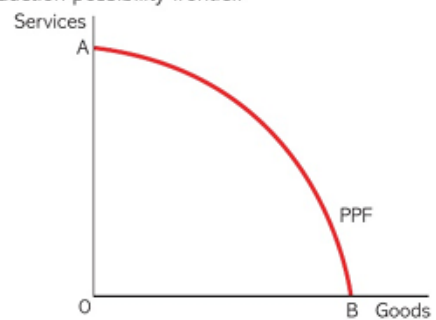
Technological advances Improvements in technology allow new products to be made or existing products to be produced with fewer resources. Increases in capital productivity (output per unit of capital employed) shift the LRAS curve to the right. Improvements in technology will also increase labour productivity. If workers have access to better capital equipment, output per worker will increase.

Changes in relative productivity to competing economies An increase in productivity for an economy will increase its productive potential. The production possibility frontier will shift outwards. This means the LRAS will shift to the right. The LRAS of the world economy will increase if there is increased specialisation between economies, allowing production to be located in the cheapest and most efficient place in the world economy.

FIGURE 4

A production possibility frontier

Any point on the production possibility frontier AB shows the potential output of the economy when all resources are being used. The LRAS curve also shows the potential output of the economy. At any point in time, if the economy is operating on its LRAS curve, then it will be operating at one of the points along the production possibility frontier.



Changes in education and skills Improvements in education and skills of workers will raise their productivity (output per worker), so increasing LRAS.

Changes in government regulations Changes in government regulations can lead to an increase in LRAS. For example, making it simpler to set up a company could encourage more entrepreneurs to create companies, and in turn more output and jobs.

Demographic changes and migration Demographic (population) changes that increase the size of the workforce are likely to increase LRAS. A population where the number of people of working age is shrinking will reduce LRAS.

Competition policy Government policies that increase competition among firms is likely to increase LRAS. Competition is likely to force firms to be more productive and reduce their costs, or more innovative producing new products and new ways of producing goods and services. However, less competition can sometimes be beneficial if it encourages investment and innovation.

Enterprise and risk-taking Economies where enterprise and risk taking are encouraged are likely to see increases in their LRAS. The creation of new firms will increase output now and in the future when some of them grow in size. Enterprise and risk taking also encourage competition which in itself might increase LRAS.

Factor mobility Increases in factor mobility are likely to increase LRAS. For example, in the European Union, movements of workers from Poland or Estonia to work in Germany or France are likely to increase the productive potential of Germany, France and the EU.

Economic incentives Improvements in economic incentives can increase aggregate supply. For example, giving tax incentives for the unemployed to take a job can reduce unemployment and increase output.

The institutional structure of the economy The institutional structure of an economy refers to the political system, laws, the educational system, the banking system, and other systems that determine how an economy works. Equally, if the banking system is weak, saving and borrowing will be affected. A stronger banking system can encourage households to save and make funds more available to firms, again increasing long-run aggregate supply.

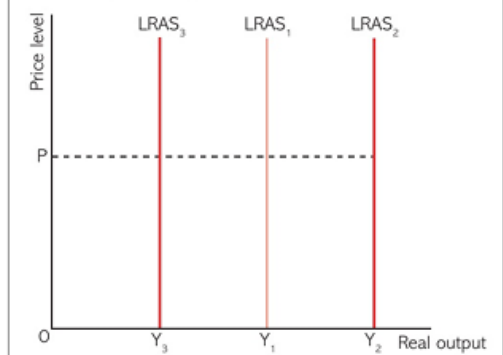
Figure 7 shows how a growth in potential output is drawn on an aggregate supply diagram. Assume that the education and skills of the workforce increase. This should lead to labour becoming more productive, in turn leading to an increase in the productive potential of the economy at full employment. The LRAS curve will then shift from $LRAS_1$ to $LRAS_2$, showing that at a given level of prices, the economy can produce more output. A fall in potential output, caused for instance by a fall in the size of the labour force, would be shown by a leftward shift in the curve, from $LRAS_1$ to $LRAS_3$.

THE CLASSICAL AND KEYNESIAN LONG- RUN AGGREGATE SUPPLY CURVES

The vertical LRAS curve is called the classical LRAS curve. It is based on the classical view that markets tend to correct themselves fairly quickly when they are pushed into **disequilibrium** by a shock. In the long run, product markets like the markets for oil, cameras or meals out, and factor markets like the market for labour, will be in equilibrium. If all markets are in equilibrium, there can be no unemployed resources. Hence, the economy must be operating at full capacity on its production possibility boundary.

FIGURE 7

A shift in the long-run aggregate supply curve
An increase in the productive potential in the economy pushes the LRAS curve to the right, for instance, from $LRAS_1$ to $LRAS_2$. A fall in productive potential, in contrast, is shown by a shift to the left of the curve, from $LRAS_1$ to $LRAS_3$ for instance.



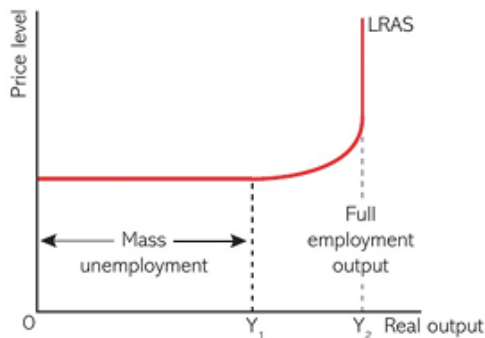
Keynesian economists therefore suggest that the LRAS curve is the shape shown in Figure 8. At an output level of Y_2 , the LRAS curve is vertical, as with the classical LRAS curve. Y_2 is the full capacity level of output of the economy. It is when the economy is on its production possibility boundary.

At an output level below Y_1 the economy is in a deep and prolonged depression. There is mass unemployment. In theory, unemployment should lead to wages falling. If there is too much supply of labour, the price of labour will fall. However, in a modern economy, there are many reasons why wages may not fall. There might be a national minimum wage that sets a floor for wages. Trade unions might fight to maintain wage levels. High unemployment might continue in one area of the country when there is full employment in another area because of labour being unable to move.

FIGURE 8

The Keynesian long-run aggregate supply curve

Traditional Keynesian economists argue that, even in the long run, unemployment may persist because wages do not necessarily fall when unemployment occurs. When there is mass unemployment, output can be increased without any increases in costs and therefore prices. As the economy approaches full employment, higher output leads to higher prices. At full employment, the economy cannot produce any more, whatever prices firms receive.



SUBJECT VOCABULARY

aggregate supply curve the relationship between the average level of prices in the economy and the level of total output.

disequilibrium a loss or lack of equilibrium or stability, especially in relation to supply, demand and prices.

full capacity the level of output where no extra production can take in the long run with existing resources. The full capacity level of output for an economy is shown by the classical long-run aggregate supply curve or the vertical part of a Keynesian aggregate supply curve.

long-run aggregate supply curve the aggregate supply curve that assumes that wage rates are variable, both upward and downwards. Classical or supply side economists assume that wage rates are flexible. Keynesian economists assume that wage rates may be 'sticky downwards' and hence the economy may operate at less than full employment even in the long run.

output gap the difference between actual level of GDP and the productive potential of the economy (actual output less trend output).

productivity output per unit of input employed.

short-run aggregate supply curve the upward sloping aggregate supply curve that assumes that money wage rates are fixed.

supply-side shock a factor, such as changes in wage rates or commodity prices, that causes the short-run aggregate supply curve to shift.