

The AD/AS Model for Unit 3

The purpose of this section of the web guide is to provide a brief overview of the AD/AS model for the purposes of unit 3. The intention is to provide a guide to the level of detail required rather than a full text-book explanation of the model. As such, this section may be useful for revision but should not be relied on to learn the principles underpinning the framework.

It is clear from the summer examination scripts that centres are using a wide variety of macroeconomic models – not all of which are appropriate to the demands of the unit. Some candidates tried to use 45 degree models, or even microeconomic supply and demand models. Neither of these are rich enough to generate an appropriate level of macroeconomic discussion and will be awarded few if any marks if used to answer questions in this unit.

At the other extreme, some candidates had complex mixtures of short and long run supply curves on the same diagram. Whilst there is nothing wrong with this theoretically it was very noticeable that many of these candidates tended to get rapidly confused when trying to deal with exogenous shocks. This part of the guide attempts to make clear the expectations of the examiners for AS level.

Aggregate Demand

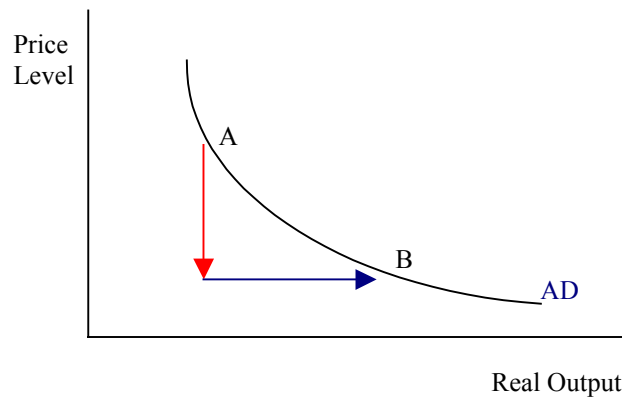
Aggregate Demand{xe "Aggregate Demand"} is the total level of planned real expenditure on UK produced goods and services by households, firms, government and the foreign sector. This can be abbreviated: $AD = C + I + G + X - M$. where C represents household's consumption{xe "**Consumption**"}, I investment by firms{xe "**Investment**"}, G government expenditure, and X-M exports minus imports.

An aggregate demand{xe "Aggregate Demand"} curve shows the level of planned demand for real output at each price level. (It should be understood that real output and real income are the same in this context. That is, the marking for the horizontal axis of the model can be 'real GDP', 'real output', or 'real income' – if using an abbreviation put 'y' not 'Q' to avoid suggesting a microeconomic analysis.)

An aggregate demand{xe "Aggregate Demand"} curve is normally drawn sloping downwards{xe "**Aggregate Demand:curve slopes downwards**"}, for a number of reasons:

- First, and moving from A to B on the diagram below, as the price level falls, other things remaining the same, the UK's international competitiveness increases leading to higher planned demand for exports.

Planned Aggregate Demand



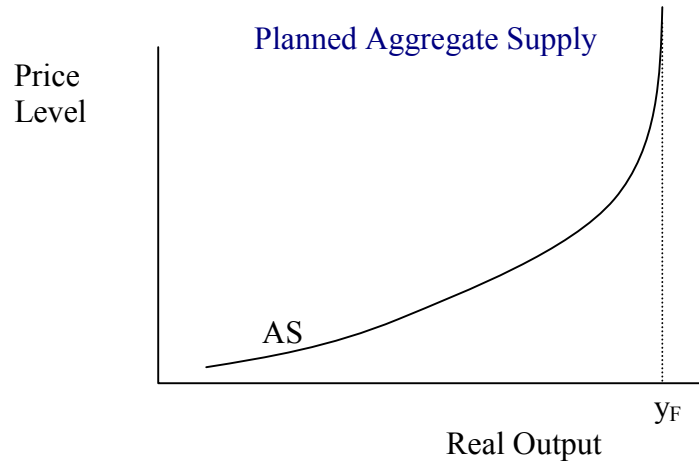
- Second, lower prices give households greater real liquidity: they will need to borrow less money and interest rates will fall - stimulating greater consumption and investment.
- Third, the lower interest rates will also have the effect of raising *wealth* e.g. through higher stock market prices; this might also stimulate consumption. {xe "Aggregate Demand:Curve Diagram"}

It should be made clear to candidates that explanations of the slope of the AD curve of the kind “as goods get cheaper people want to buy more of them” will earn few marks. The diagram is *macroeconomic* so the standard substitution effect explaining the slope of a microeconomic demand curve is invalid: the only goods into which *an economy* can substitute are foreign ones. Income effects are, of course, more easily generalisable as listed above.

A *shift* in {xe "Aggregate Demand:shift in"} aggregate demand {xe "Aggregate Demand"} will occur following a change in any of the *exogenous* components of AD. Examples would include a cut in income tax raising consumption, a fall in interest rates raising investment, a rise in government spending, and {xe "Investment:autonomous"} a fall in the exchange rate stimulating exports whilst reducing imports.

Aggregate Supply

An aggregate supply curve represents the planned level of real output at each potential price level. In the diagram below the AS curve is drawn with a vertical section representing the full employment level of output.



As the price level rises firms are willing to produce a higher level of real output. The specification does not require any deeper theoretical understanding of this – however, I have found that many pupils require a fuller explanation at this point, leading to an informal (aggregated) discussion of diminishing marginal returns. The full employment level of output corresponds to the economy being on the PPF – that is, it is impossible for an economy to exceed the output level y_F in the short run because it has used all of its available resources.

As a result of this short-run constraint the AS curve is shown becoming more inelastic the closer the economy gets to the PPF. At the full employment level of output the AS curve is perfectly inelastic. At lower levels of real output, where there are plenty of spare resources (e.g. unemployed workers) it is likely that the AS curve is much more elastic.

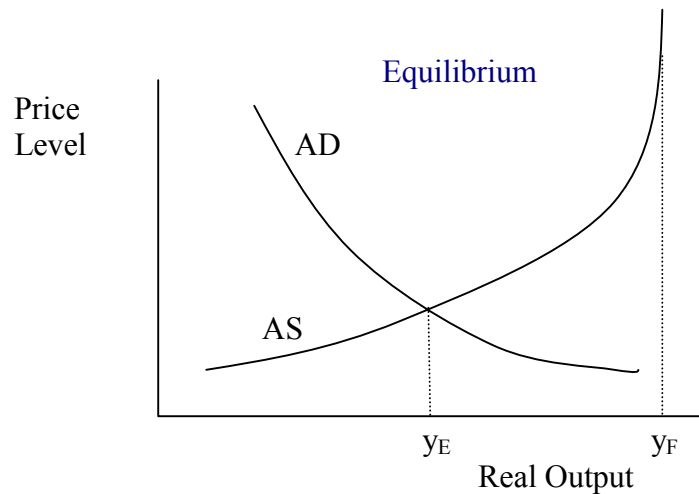
The aggregate supply curve will shift following *exogenous* shocks. Candidates should be able to analyse changes in input costs including wage growth and oil prices. The effects of productivity changes (working practices, technological change) should also be considered.

[It is worth emphasising that a fall in AS involves a shift of the curve to the left i.e. less is supplied in the aggregate at each price. Candidates who have not fully registered that real output is on the horizontal axis tend to confuse this with a rise in AS.]

Equilibrium

Equilibrium is defined as the price level and level of real output at which planned aggregate demand is equal to planned aggregate supply. At equilibrium there will be

no tendency for the economy's price level or level of real output to change. Only an exogenous shock to the system will cause such a change by shifting one or more of the curves.



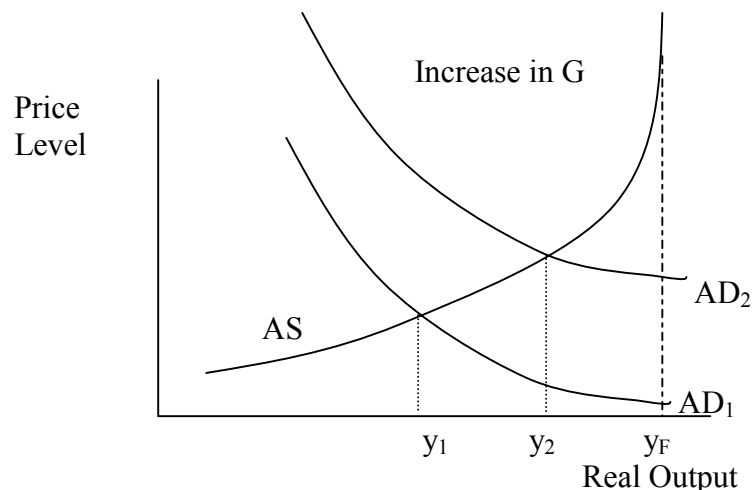
In the diagram above, y_E is the equilibrium level of real output. Notice that in the economy illustrated y_E is less than y_F so the economy has an *output gap* i.e. is inside its PPF. This encapsulates the Keynesian assumption that economies can suffer lost output and unemployment due to insufficient aggregate demand.

Three Examples of Exogenous Shocks

This section illustrates the level of AD/AS analysis required for unit 3. Three examples are considered:

1. Analyse the effect on real GDP of an increase in government spending on the NHS

Since G is a component of AD in $C+I+G+X-M$ the rise in government spending will shift the aggregate demand curve to the right, causing a multiplied expansion in output – there will be further increases in AD as incomes are passed on as further rounds of expenditure.

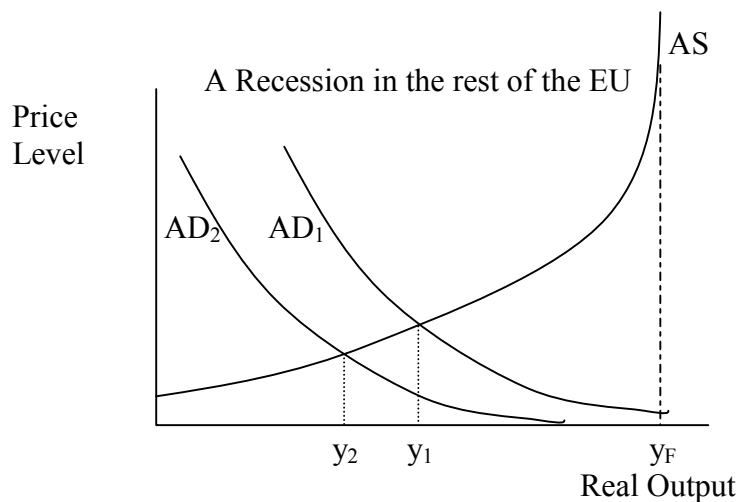


At the end of this process AD will have increased to AD_2 and the level of real output – involving an extension of aggregate supply – will have increased to y_2 .

It may well be the case that in the longer run a healthier workforce may be created – increasing productivity levels and so increasing the level of aggregate supply.

2. Analyse the effect on the level of real GDP of a recession in the euro-zone

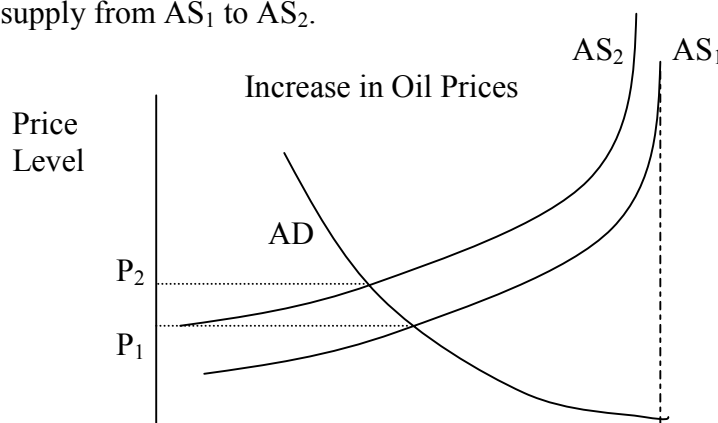
Falling growth in the euro-zone may be reflected in lower demand for UK exports. Since X is part of $C+I+G+X-M$ this will have an adverse effect on the level of UK aggregate demand. This in turn will lead to a multiplied contraction in output as cuts in spending reduce real incomes and lead to second round cuts in spending.

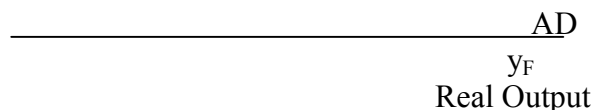


Aggregate demand falls to AD_2 and the equilibrium level of real GDP falls from y_1 to y_2 so raising the size of the output gap. Thus, to some extent, a recession in the euro-zone is likely to be infectious – the UK does over half of its trade with the rest of the EU.

3. Analyse the effect on the UK price level of a rise in oil prices

The rise in oil prices will raise costs for firms for whom oil is an input – e.g. oil fired heating and transport costs. Other things remaining the same this will cause a fall in aggregate supply from AS_1 to AS_2 .





[Candidates should be absolutely clear that what is illustrated above is a *fall* in AS not a rise.]

The result is an increase in the price level at a lower level of real output than before, with equilibrium now at P_2 . Oil is a significant cost for firms – and demand is inelastic because it is difficult to find substitutes in the short run. It may also be the case that as prices rise there may be higher wage demands - so leading to additional increases in costs and further falls in the AS curve.

Strategies for generating *evaluation* marks within the context of the AD/AS model are considered in the next section of this web guide.