Chain of events and diagrams: Different macroeconomic models

The purpose of this summary is to show you how the various models developed in this module are connected. This is a compliment to the study plan laid out in the MO001 and ***does not replace it****.*

Two stabilisation policies:

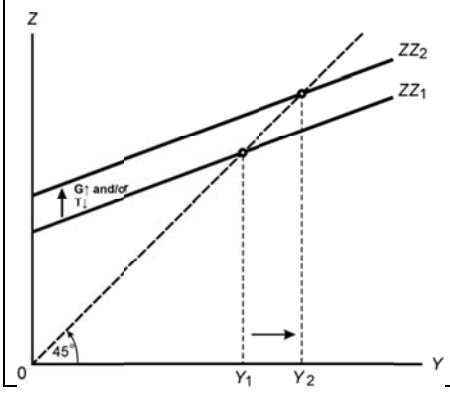
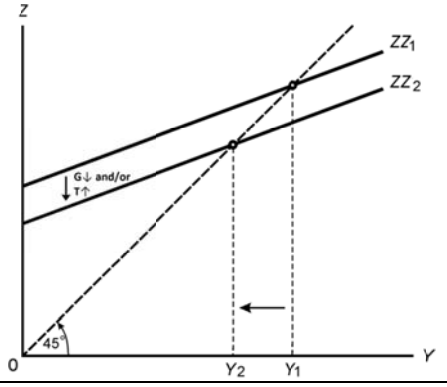
Fiscal policy	Monetary policy
Two policy instruments: G and T	One policy instrument: M^s
An **expansionary fiscal policy** is an increase in government spending and/or decrease in taxes in order to stimulate economic activity by increasing the demand for goods	An **expansionary monetary policy** is an increase in the nominal money supply in order to stimulate economic activity by increasing the demand for goods
A **contractionary fiscal policy** is a decrease in government spending and/or increase in taxes in order to cool down economic activity by decreasing the demand for goods	A **contractionary monetary policy** is a decrease in the nominal money supply in order to cool down economic activity by decreasing the demand for goods

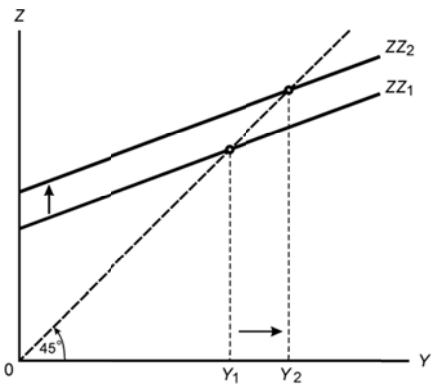
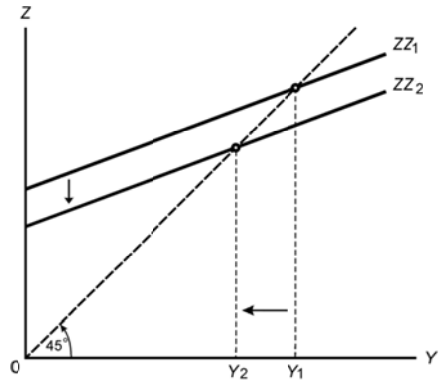
Goods market model

Only fiscal policy (G and/or T) is applicable in the goods market.

Other factors that could shift the ZZ curve are: Investment spending; investor confidence, consumer confidence

Chain of events in the **goods market model** and diagrams:

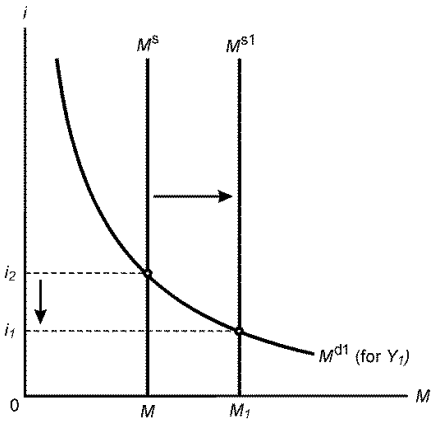
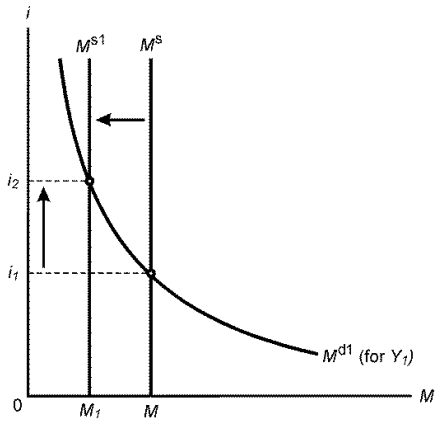
Expansionary fiscal policy **A increase in G** **A decrease in T**	**Contractionary fiscal policy** **A decrease in G** **An increase in T**
$G\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ Or $T\downarrow \rightarrow Y_D\uparrow \rightarrow C\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ 	$G\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ Or $T\uparrow \rightarrow Y_D\downarrow \rightarrow C\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ 

Other factors in the goods market: **An increase in I** **An increase in investor confidence** **An increase in consumer confidence**	**Other factors in the goods market:** **A decrease in I** **A decrease in investor confidence** **A decrease in consumer confidence**
$I\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ Investor confidence$\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ Consumer confidence$\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ 	$I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ Investor confidence$\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ Consumer confidence$\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ 

Financial market model

Only the monetary policy (M^s) applicable

Chain of events in the **financial market model** and diagrams:

Expansionary monetary policy **An increase in the nominal money supply**	**Contractionary monetary policy** **A decrease in the nominal money supply**
$M^s\uparrow \rightarrow M/P\uparrow \rightarrow i\downarrow$ (Buy bonds: $M^s\uparrow$: $D_B\uparrow \rightarrow P_B\uparrow \rightarrow i\downarrow$) 	$M^s\downarrow \rightarrow M/P\downarrow \rightarrow i\uparrow$ (Sell bonds: $M^s\uparrow$: $D_B\downarrow \rightarrow P_B\downarrow \rightarrow i\uparrow$) 

In this module we follow the traditional approach to money supply, which means that we assume the money supply is controlled by the central bank. A decrease in the money supply (resulting from the central bank selling bonds on the open market) will decrease the real money supply which results in an increase in the interest rate (because the supply of bonds increases on the bonds market, and so the price of bonds decreases and the return on holding bonds, or interest rate, increases):
$M^s\uparrow$: $S_B\uparrow \Rightarrow P_B\downarrow \Rightarrow i\uparrow$. In this module the **central bank does not control the repo rate** or any other interest rate directly (as the SARB does in practice in South Africa).

<u>The central bank influences the interest rate through the money supply</u>.
Therefore when describing monetary policy the chain of events cannot start with i – it starts with a change in **M^s**.

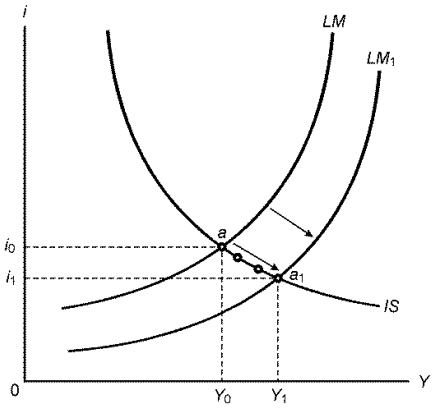
IS-LM model (in a closed economy)

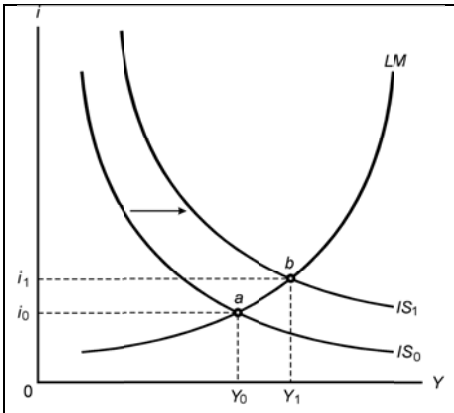
The IS curve is derived from the goods market.

The LM curve is derived from the financial market.

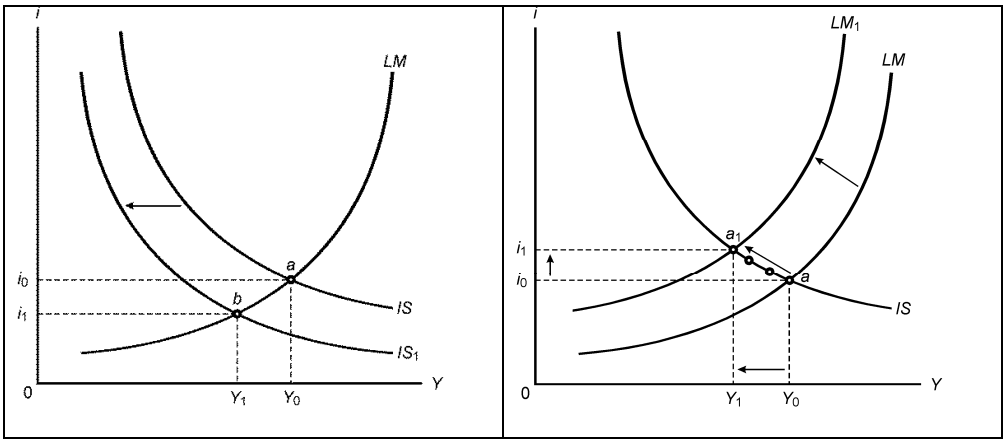
Therefore changes in the goods market and financial market will affect the IS-LM model. Thus, both the fiscal policy (G and/or T) and monetary policy (M^s) are applicable

Fiscal policy will have an impact on the goods market first and then on the financial market and then back to the goods market.
Monetary policy will have an impact on the financial market first and then on the goods market.
Chain of events in the **IS-LM model** and diagrams:

Expansionary fiscal policy **An increase in G** **A decrease in T**	**Expansionary monetary policy** **An increase in M^s**
<u>Government spending increases</u> *The impact on the goods market first* $G\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ *Impact on the financial market* $Y\uparrow \rightarrow M^d\uparrow \rightarrow i\uparrow$ $i\uparrow \rightarrow I\downarrow$ $Y\uparrow \rightarrow I\uparrow$ *Then back to the goods market* $i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ <u>AND/OR</u> <u>Taxes decreases</u> *The impact on the goods market first* $T\downarrow \rightarrow Y_D\uparrow \rightarrow C\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ *Impact on the financial market* $Y\uparrow \rightarrow M^d\uparrow \rightarrow i\uparrow$ $i\uparrow \rightarrow I\downarrow$ $Y\uparrow \rightarrow I\uparrow$ *Then back to the goods market* $i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$	<u>Nominal money supply increases</u> *The impact on the financial market* $M^s\uparrow \rightarrow M/P\uparrow \rightarrow i\downarrow$ *Impact on the goods market* $i\downarrow \rightarrow I\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ $Y\uparrow \rightarrow I\uparrow$ $Y\uparrow \rightarrow C\uparrow$ 



Contractionary fiscal policy **A decrease in government spending**	**Contractionary monetary policy** **A decrease in M**
<u>Government spending decreases</u> *Impact is first on the goods market* $G\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ $Y\downarrow \rightarrow C\downarrow$ $Y\downarrow \rightarrow I\downarrow$ *Then the impact on the financial market* $Y\downarrow \rightarrow M^d\downarrow \rightarrow i\downarrow$ *Back to the goods market* $i\downarrow \rightarrow I\uparrow$ $Y\downarrow \rightarrow I\downarrow$ <u>AND/OR</u> <u>Taxes decreases</u> *Impact is first on the goods market* $T\uparrow \rightarrow Y_D\downarrow \rightarrow C\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ $Y\downarrow \rightarrow C\downarrow$ $Y\downarrow \rightarrow I\downarrow$ *Then the impact on the financial market* $Y\downarrow \rightarrow M^d\downarrow \rightarrow i\downarrow$ *Back to the goods market* $i\downarrow \rightarrow I\uparrow$ $Y\downarrow \rightarrow I\downarrow$	<u>Nominal money supply decreases</u> *The impact is on the financial market first:* $M^s\downarrow \rightarrow M/P\downarrow \rightarrow \mathbf{i}\uparrow$ *Impact on the goods market* $i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ $Y\downarrow \rightarrow I\downarrow$ $Y\downarrow \rightarrow C\downarrow$



IS-LM model for an open economy

The first part of the chain of events will be the exactly the same as for the IS-LM model in a closed economy. Since we now operate in the open economy where goods and services can be exported and imported we add the impact on the exchange rate and trade balance

The change in the interest rate determines the impact on the exchange rate. Why?

A decline in the interest rate causes a depreciation of the nominal exchange rate. The depreciation of the nominal exchange rate is the result of the decrease in the domestic interest rate relative to the interest rate in the rest of the world. This causes domestic bonds to be less attractive and a capital outflow occurs. This capital outflow reduces the demand for the domestic currency (it increases the demand for foreign currency) and the exchange rate depreciates. The depreciation of the exchange rate reduces the price of exports and increases the price of imports which has a positive impact on the trade balance. The negative effects are that the imports bill is now higher and an increase in exports will lead to an increase in the demand for goods and the level of output and income which will increase imports.

i↓ → **Capital$_{outflow}$** → **E**↓

E↓ → X↑ → NX↑
E↓ → IM↓ → NX↑
Y↑→ IM↑ → NX↓
We assume this effect is outstripped and overall the trade balance improves (NX↑)

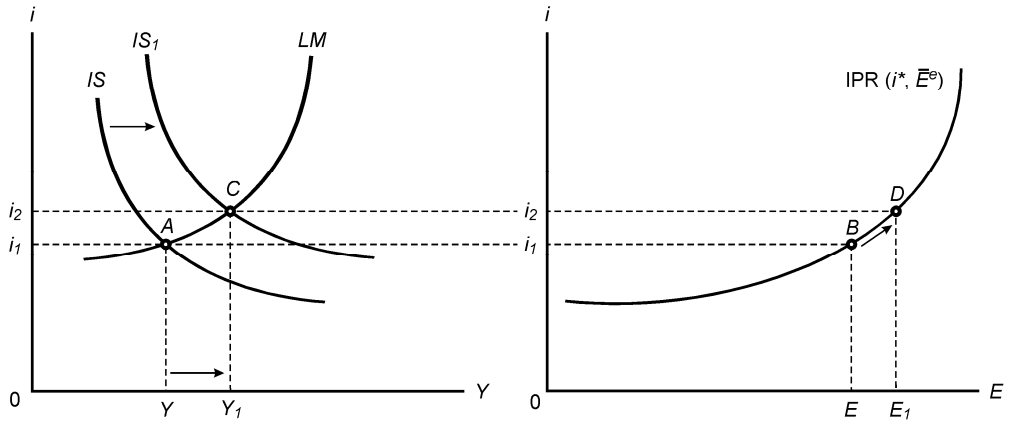
The opposite is also true: An increase in the interest rate causes an appreciation of the exchange rate

Chain of events in the **IS-LM model for an open economy** and diagrams:

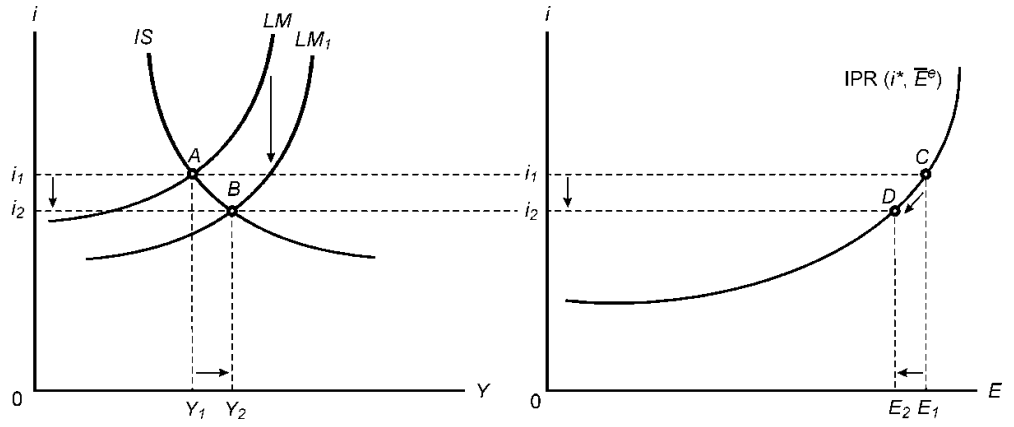
Expansionary fiscal policy **An increase in G** **A decrease in T**	**Expansionary monetary policy** **An increase in the M**
<u>Government spending increases</u> *The impact on the goods market first* $G\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ *Impact on the financial market* $Y\uparrow \rightarrow M^d\uparrow \rightarrow i\uparrow$ $i\uparrow \rightarrow I\downarrow$ $Y\uparrow \rightarrow I\uparrow$ *Then back to the goods market* $i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ **Impact on the exchange rate and trade balance** $i\uparrow \rightarrow Capital_{inflow} \rightarrow E\uparrow \rightarrow X\downarrow \rightarrow NX\downarrow$ $E\uparrow \rightarrow IM\uparrow \rightarrow NX\downarrow$ $Y\uparrow \rightarrow IM\uparrow \rightarrow NX\downarrow$ **What will be the impact on the financial account of the balance of payments?** The increase in the domestic interest rate relative to the interest rate in the rest of the world leads to an increase in the demand for domestic bonds which creates a capital inflow and thus an improvement of the financial account	<u>Nominal money supply increases</u> *The impact is on the financial market* $M^s\uparrow \rightarrow M/P\uparrow \rightarrow i\downarrow$ *Impact on the goods market* $i\downarrow \rightarrow I\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ $Y\uparrow \rightarrow I\uparrow$ $Y\uparrow \rightarrow C\uparrow$ **Impact on the exchange rate and trade balance** $i\downarrow \rightarrow Capital_{outflow} \rightarrow E\downarrow \rightarrow X\uparrow \rightarrow NX\uparrow$ $E\downarrow \rightarrow IM\downarrow \rightarrow NX\uparrow$ $Y\uparrow \rightarrow IM\uparrow \rightarrow NX\downarrow$ (we assume this effect is outstripped and overall the trade balance improves $NX\uparrow$) **What will be the impact on the financial account of the balance of payments?** The decrease in the domestic interest rate relative to the interest rate in the rest of the world leads to a decrease in the demand for domestic bonds which creates a capital outflow and thus a deterioration of the financial account
<u>Taxes decreases</u> *The impact on the goods market first* $T\downarrow \rightarrow Y_D\uparrow \rightarrow C\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ *Impact on the financial market* $Y\uparrow \rightarrow M^d\uparrow \rightarrow i\uparrow$ $i\uparrow \rightarrow I\downarrow$ $Y\uparrow \rightarrow I\uparrow$ *Then back to the goods market* $i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ **Impact on the exchange rate and trade balance** $i\uparrow \rightarrow Capital_{inflow} \rightarrow E\uparrow \rightarrow X\downarrow \rightarrow NX\downarrow$ $E\uparrow \rightarrow IM\uparrow \rightarrow NX\downarrow$ $Y\uparrow \rightarrow IM\uparrow \rightarrow NX\downarrow$ **What will be the impact on the financial account of the balance of payments?** The increase in the domestic interest rate relative to the interest rate in the rest of the world leads to an increase in	

the demand for domestic bonds which creates a capital inflow and thus an improvement of the financial account	

Expansionary fiscal policy
An increase in G
A decrease in T



Expansionary monetary policy
An increase in the M



Contractionary fiscal policy **A decrease in G** **An increase in T**	**Contractionary monetary policy** **A decrease in M**
<u>Government spending decreases</u> *Impact is first on the goods market* $G\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ $Y\downarrow \rightarrow C\downarrow$ $Y\downarrow \rightarrow I\downarrow$ *Then the impact on the financial market* $Y\downarrow \rightarrow M^d\downarrow \rightarrow i\downarrow$ *Back to the goods market* $i\downarrow \rightarrow I\uparrow$ $Y\downarrow \rightarrow I\downarrow$ **Impact on the exchange rate and trade balance** $i\downarrow \rightarrow Capital_{outflow} \rightarrow E\downarrow \rightarrow X\uparrow \rightarrow NX\uparrow$ $E\downarrow \rightarrow IM\downarrow \rightarrow NX\uparrow$ $Y\downarrow \rightarrow IM\downarrow \rightarrow NX\uparrow$ **What will be the impact on the financial account of the balance of payments?** The decrease in the domestic interest rate relative to the interest rate in the rest of the world leads to a decrease in the demand for domestic bonds which creates a capital outflow and thus a deterioration of the financial account <u>Taxes increases</u> *Impact is first on the goods market* $T\uparrow \rightarrow Y_D\downarrow \rightarrow C\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ $Y\downarrow \rightarrow C\downarrow$ $Y\downarrow \rightarrow I\downarrow$ *Then the impact on the financial market* $Y\downarrow \rightarrow M^d\downarrow \rightarrow i\downarrow$ *Back to the goods market* $i\downarrow \rightarrow I\uparrow$ $Y\downarrow \rightarrow I\downarrow$ **Impact on the exchange rate and trade balance** $i\downarrow \rightarrow Capital_{outflow} \rightarrow E\downarrow \rightarrow X\uparrow \rightarrow NX\uparrow$ $E\downarrow \rightarrow IM\downarrow \rightarrow NX\uparrow$ $Y\downarrow \rightarrow IM\downarrow \rightarrow NX\uparrow$ **What will be the impact on the financial account of the balance of payments?**	<u>Nominal money supply increases</u> *The impact is on the financial market first:* $M^s\downarrow \rightarrow M/P\downarrow \rightarrow i\uparrow$ *Impact on the goods market* $i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ $Y\downarrow \rightarrow I\downarrow$ $Y\downarrow \rightarrow C\downarrow$ **Impact on the exchange rate and trade balance** $i\uparrow \rightarrow Capital_{inflow} \rightarrow E\uparrow \rightarrow X\downarrow \rightarrow NX\downarrow$ $E\uparrow \rightarrow IM\uparrow \rightarrow NX\downarrow$ $Y\downarrow \rightarrow IM\downarrow \rightarrow NX\uparrow$ (we assume this effect is outstripped and overall the trade balance deteriorates $NX\downarrow$) **What will be the impact on the financial account of the balance of payments?** The increase in the domestic interest rate relative to the interest rate in the rest of the world leads to an increase in the demand for domestic bonds which creates a capital inflow and thus an improvement of the financial account

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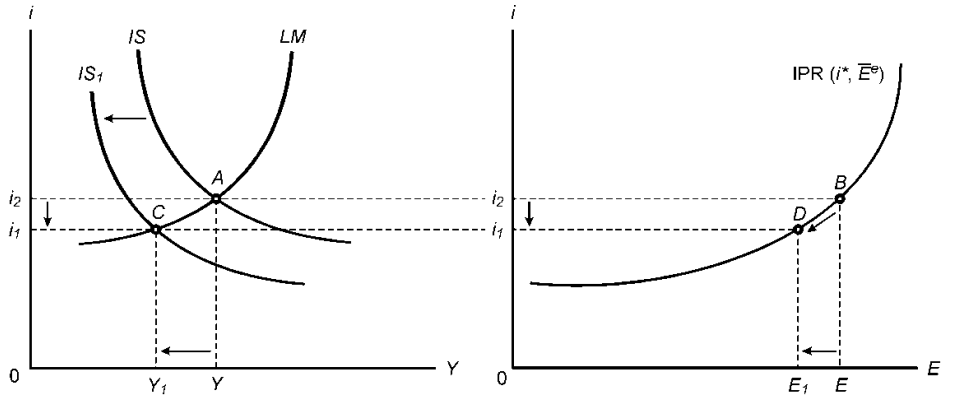
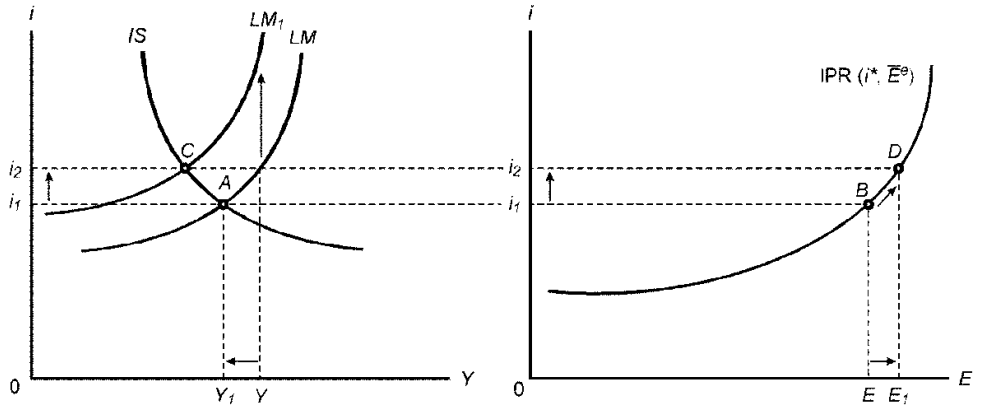
Contractionary fiscal policy
A decrease in G
An increase in T



Contractionary monetary policy
A decrease in M



AS-AD model (in a closed economy)

The AS-AD model is a combination of the IS-LM model and the labour market, it assumes that the price level is not fixed (as it has been in the previous models).
The AS-AD model looks at the determination of output and income in both the short run and medium run.

The AS relation

The AS relation captures the effect of a change in the level of output and income (Y) on the price level (P) and is derived from the behaviour of wages ($W = P^eF(u,z)$) and prices ($P = (1 + m)W$) in the labour market.

In the labour market model we assumed that the actual price level was equal to the expected price level ($P = P^e$), but in the AS-AD model it is only true for the short run.

The AD relation

The AD curve is derived from the IS-LM model by assuming a change in the price level.

The AD curve shows a negative relationship between the price level and the level of output and income, and represents combinations of the price level and the level of output and income where the goods and financial markets are in equilibrium.

In terms of a chain of events, the derivation of the aggregate demand curve can be represented as follows:

$P\uparrow \rightarrow M/P\downarrow \rightarrow i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$

Changes in monetary and fiscal policy will result in a shift of the AD curve, however any of the factors which could shift the IS or LM curves will also result in a shift of the AD curve (eg a change in investor or consumer confidence).

Difference between the short and medium run

In the short run, it is possible to be at a position away from the natural level of production and employment.
The short run will last for as long as the expected price level remains unchanged.
In the short run only the AD curve will shift to the right or to the left because of the implementation of fiscal and/or monetary policies.
AD curve will shift to the right: expansionary fiscal and/or monetary policies.
AD curve will shift to the left: contractionary fiscal and/or monetary policies

In the medium run, however, the economy returns to the natural level of output and employment.
Once the expected price level changes, we enter the medium run.
In the medium run the AS curve will shift downwards or upwards as a result of the impact of the implementation of fiscal and/or monetary policies in the short run.

In the short run eventually workers will realise that the actual price level is higher than the price level they expected, and during the next round of wage negotiations they will adjust their expected price level and nominal wage demands upwards. This now brings us to the medium run. As workers revise their price expectations upwards, they increase their nominal wage demands. Firms react to this rise in the nominal wages by increasing the prices of goods and services. This increase in the price level, however, affects the financial market, where an increase in the price level reduces the real money supply, which in turn causes an increase in the interest rate and a decrease in investment spending, which lowers the demand for goods and the level of output declines.

In terms of a chain of events, this can be represented as follows:

$P^e\uparrow \rightarrow W\uparrow \rightarrow P\uparrow \rightarrow M/P\downarrow \rightarrow i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$

This process continues until the natural level of output and employment is reached, where the expected price level (P^e) = the actual price level (P). This then is the medium run position.

Chain of events in the **AS-AD model** and diagrams

The first part of the chain of events will be the exactly the same as for the IS-LM model in a closed economy.

In the AS-AD model we add the impact on the labour market in the short run and moves from the short run to the medium run.

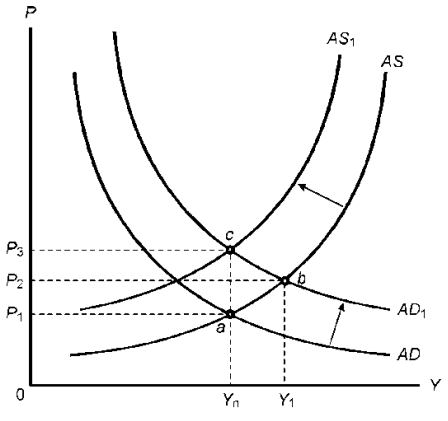
Expansionary fiscal policy **An increase in G** **A decrease in T**	**Expansionary monetary policy** **An increase in the M**
Government spending increases **Short run: *P^e is the same*** *The impact on the goods market first* $G\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ *Impact on the financial market* $Y\uparrow \rightarrow M^d\uparrow \rightarrow i\uparrow$ $i\uparrow \rightarrow I\downarrow$ $Y\uparrow \rightarrow I\uparrow$ *Then back to the goods market* $i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ Since G↑ the AD will shift to the right ***Events in the labour market*** $Y\uparrow \rightarrow N\uparrow \rightarrow u\downarrow \rightarrow W\uparrow \rightarrow P\uparrow$ An upward movement along the AS curve occurs. This is the **short run equilibrium** position.	Nominal money supply increases **Short run: *P^e is the same*** *The impact on the financial market first* $M^s\uparrow \rightarrow M/P\uparrow \rightarrow i\downarrow$ *Impact on the goods market* $i\downarrow \rightarrow I\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ $Y\uparrow \rightarrow I\uparrow$ $Y\uparrow \rightarrow C\uparrow$ Since M↑ the AD will shift to the right ***Events in the labour market*** $Y\uparrow \rightarrow N\uparrow \rightarrow u\downarrow \rightarrow W\uparrow \rightarrow P\uparrow$ An upward movement along the AS curve occurs. This is the **short run equilibrium** position. **In the medium run: *P^e changes***

In the medium run: <u>*P^e changes*</u>

Events in the labour market
$P^e\uparrow \rightarrow W\uparrow \rightarrow P\uparrow$
Expected price level on which workers based their real wage negotiations turned out to be lower than the actual price level. Therefore workers revise their expected price level upwards and the nominal wage increases and in reaction to the higher nominal wages, firms increase their price levels.

AS curve will shift upwards

Events in the financial and goods market
$P\uparrow \rightarrow M/P\downarrow \rightarrow i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$
A movement along the AD curve occurs. This process continues until a point is reached, where the level of output is at the natural level of output and the unemployment rate by implication is equal to the natural rate of unemployment. This is the medium run position.



<u>Taxes decreases</u>

Short run: <u>*P^e is the same*</u>

The impact on the goods market first
$T\downarrow \rightarrow Y_D\uparrow \rightarrow C\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$
Impact on the financial market
$Y\uparrow \rightarrow M^d\uparrow \rightarrow i\uparrow$
$i\uparrow \rightarrow I\downarrow$

Events in the labour market
$P^e\uparrow \rightarrow W\uparrow \rightarrow P\uparrow$
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Events in the financial and goods market
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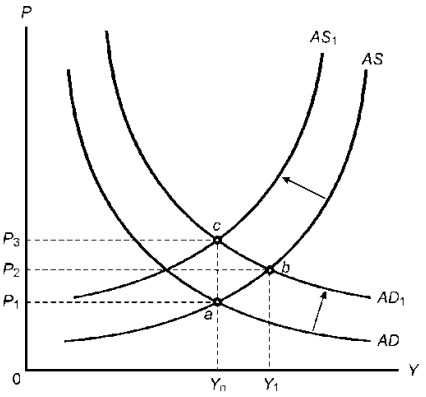
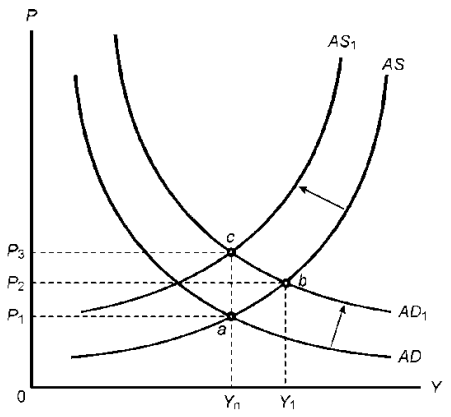


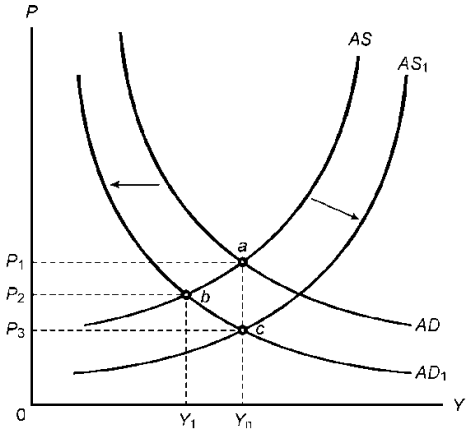
THE NEUTRALITY OF MONEY

The impact of an expansionary monetary policy in the medium run is neutral, which means that it only changes nominal variables (nominal money supply, the nominal wage and

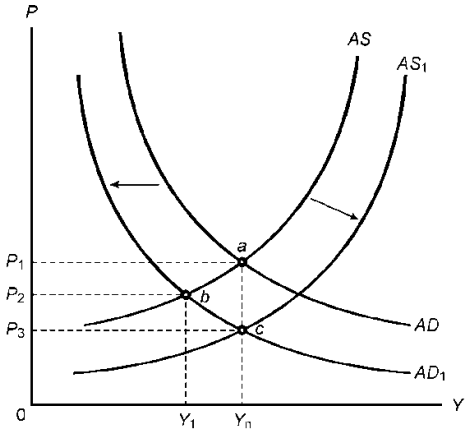
$Y\uparrow \rightarrow I\uparrow$ *Then back to the goods market* $i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ Since T↓ the AD will shift to the right ***Events in the labour market*** $Y\uparrow \rightarrow N\uparrow \rightarrow u\downarrow \rightarrow W\uparrow \rightarrow P\uparrow$ An upward movement along the AS curve to point b occurs. This is the **short run equilibrium** position. **In the medium run: *P^e changes*** ***Events in the labour market*** $P^e\uparrow \rightarrow W\uparrow \rightarrow P\uparrow$ Expected price level on which workers based their real wage negotiations turned out to be lower than the actual price level Therefore workers revise their expected price level upwards and the nominal wage increases and in reaction to the higher nominal wages, firms increase their price levels. AS curve will shift upwards ***Events in the financial and goods market*** $P\uparrow \rightarrow M/P\downarrow \rightarrow i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ A movement along the AD curve occurs. This process continues until a point is reached, where the level of output is at the natural level of output and the unemployment rate by implication is equal to the natural rate of unemployment. This is the medium run position.  	the price level) are higher and not the real variables in the model (the level of output and income, the level of employment and the unemployment rate, the interest rate, investment spending, and the real wage) which are equal to their original values.

Contractionary fiscal policy **A decrease in G** **An increase in T**	**Contractionary monetary policy** **A decrease in M**
<u>Government spending decreases</u> **Short run: <u>*P^e is the same*</u>** *Impact is first on the goods market* $G\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ $Y\downarrow \rightarrow C\downarrow$ $Y\downarrow \rightarrow I\downarrow$ *Then the impact on the financial market* $Y\downarrow \rightarrow M^d\downarrow \rightarrow i\downarrow$ *Back to the goods market* $i\downarrow \rightarrow I\uparrow$ $Y\downarrow \rightarrow I\downarrow$ Since $G\downarrow$ the AD will shift to the left ***Events in the labour market*** $Y\downarrow \rightarrow N\downarrow \rightarrow u\uparrow \rightarrow W\downarrow \rightarrow P\downarrow$ A downward movement along the AS curve occurs. This is the **short run equilibrium** position. **In the medium run: <u>*P^e changes*</u>** ***Events in the labour market*** $P^e\downarrow \rightarrow W\downarrow \rightarrow P\downarrow$ Expected price level on which workers based their real wage negotiations turned out to be higher than the actual price level. Therefore workers revise their expected price level downwards and the nominal wage decreases and in reaction to the lower nominal wages, firms decrease their price levels. AS curve will shift downwards ***Events in the financial and goods market*** $P\downarrow \rightarrow M/P\uparrow \rightarrow i\downarrow \rightarrow I\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ A movement along the AD curve occurs. This process continues until a point is reached, where the level of output is at the natural level of output	<u>Nominal money supply increases</u> **Short run: <u>*P^e is the same*</u>** *The impact is on the financial market first:* $M^s\downarrow \rightarrow M/P\downarrow \rightarrow i\uparrow$ *Impact on the goods market:* $i\uparrow \rightarrow I\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$ $Y\downarrow \rightarrow I\downarrow$ $Y\downarrow \rightarrow C\downarrow$ Since $M\downarrow$ the AD will shift to the left ***Events in the labour market*** $Y\downarrow \rightarrow N\downarrow \rightarrow u\uparrow \rightarrow W\downarrow \rightarrow P\downarrow$ A downward movement along the AS curve occurs. This is the **short run equilibrium** position. **In the medium run: <u>*P^e changes*</u>** ***Events in the labour market*** $P^e\downarrow \rightarrow W\downarrow \rightarrow P\downarrow$ Expected price level on which workers based their real wage negotiations turned out to be higher than the actual price level Therefore workers revise their expected price level downwards and the nominal wage decreases and in reaction to the lower nominal wages, firms decrease their price levels. AS curve will shift downwards ***Events in the financial and goods market*** $P\downarrow \rightarrow M/P\uparrow \rightarrow i\downarrow \rightarrow I\uparrow \rightarrow Z\uparrow \rightarrow Y\uparrow$ A movement along the AD curve occurs. This process continues until a point is reached, where the level of output is at the natural level of output

and the unemployment rate by implication is equal to the natural rate of unemployment. This is the medium run position.



and the unemployment rate by implication is equal to the natural rate of unemployment. This is the medium run position.



<u>Taxes increases</u>

Impact is first on the goods market
$T\uparrow \rightarrow Y_D\downarrow \rightarrow C\downarrow \rightarrow Z\downarrow \rightarrow Y\downarrow$

$Y\downarrow \rightarrow C\downarrow$
$Y\downarrow \rightarrow I\downarrow$

Then the impact on the financial market
$Y\downarrow \rightarrow M^d\downarrow \rightarrow i\downarrow$

Back to the goods market
$i\downarrow \rightarrow I\uparrow$
$Y\downarrow \rightarrow I\downarrow$

Since T↑ the AD will shift to the left

Events in the labour market
$Y\downarrow \rightarrow N\downarrow \rightarrow u\uparrow \rightarrow W\downarrow \rightarrow P\downarrow$
A downward movement along the AS curve occurs. This is the **short run equilibrium** position.

In the medium run: *<u>P^e changes</u>*

Events in the labour market
$P^e\downarrow \rightarrow W\downarrow \rightarrow P\downarrow$
Expected price level on which workers based their real wage negotiations turned out to be higher than the actual price level Therefore workers revise their expected price level downwards and the nominal wage decreases and

in reaction to the lower nominal wages, firms decrease their price levels.

AS curve will shift downwards

Events in the financial and goods market
P↓ → M/P↑ → i↓ → I↑ → Z↑ → Y↑

A movement along the AD curve occurs. This process continues until a point is reached, where the level of output is at the natural level of output and the unemployment rate by implication is equal to the natural rate of unemployment. This is the medium run position.