

Monetary Theory ISLM and Monetary Policy

Policy Makers (IMF, US Treasury) can use the ISLM model to determine what happens to interest rates and output when they increase/decrease the money supply.

Before we continue, we look at factors that cause the IS and LM curves to shift.

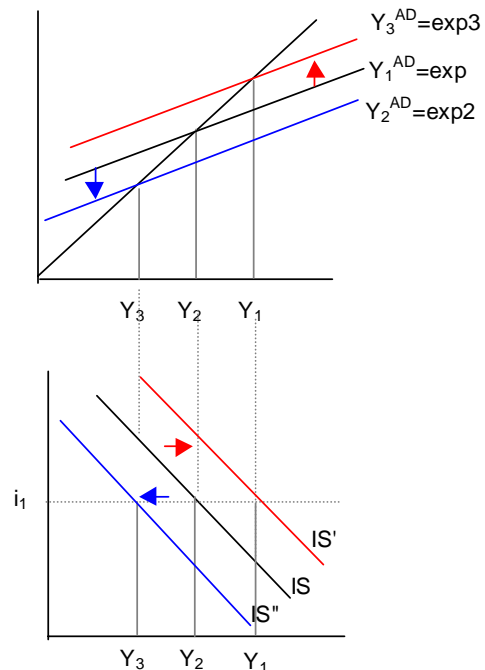
- Factors that cause the IS curve to shift

A change in the interest rate or aggregate output will cause a *movement* along the IS curve. Changes that cause the expenditure function to shift cause the IS curve to shift.

- Changes in autonomous consumption e.g. increase in confidence about the economy, changes in wealth, etc
- Changes in investment spending (unrelated to the interest rate) e.g. increase in business confidence, changes in technology, etc
- Changes in government spending
- Changes in taxes
- Changes in Net Exports (unrelated to the interest rate) e.g. changes in taste, trade policy, etc

An increase in G , I , NX , and a shifts the expenditure Y_{AD} function up. For a given interest rate, i_1 , the IS curve shifts to the right \rightarrow increase in equilibrium income.

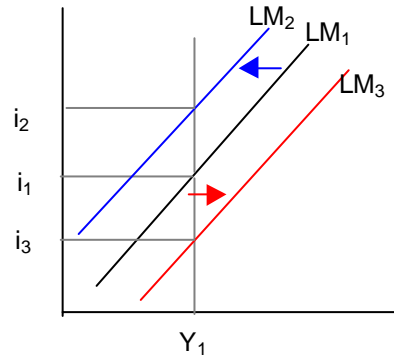
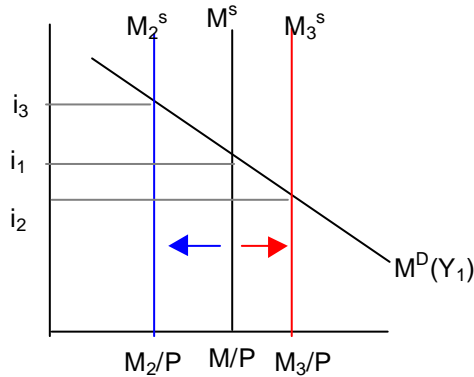
An increase in T shifts the expenditure Y_{AD} function down. For a given interest rate, i_1 , the IS curve shifts to the left \rightarrow decrease in equilibrium income.



- Factors that cause the LM curve to shift

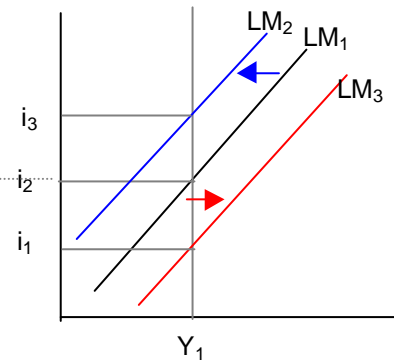
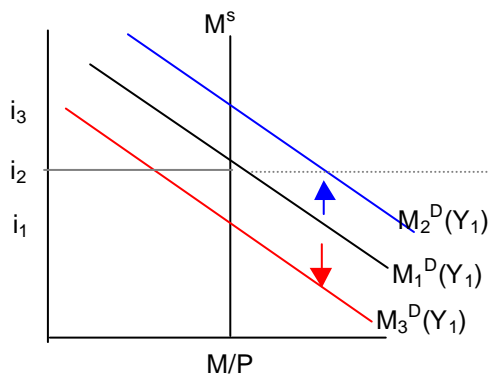
A change in the interest rate or aggregate output will cause a *movement* along the LM curve. Changes that cause the M^D or M^S curves to shift cause the LM curve to shift.

- Changes in the money supply



When the money supply decreases, the LM curve shifts left for a given income, Y_1 . Why? When the money supply falls, $M^s < M^D$. People sell bonds, price of bond falls and interest rate increases. Since output does not change, the LM curve must shift to the left as the interest rate rises to satisfy money market equilibrium.

- Changes in money demand (not related to the interest rate or income)



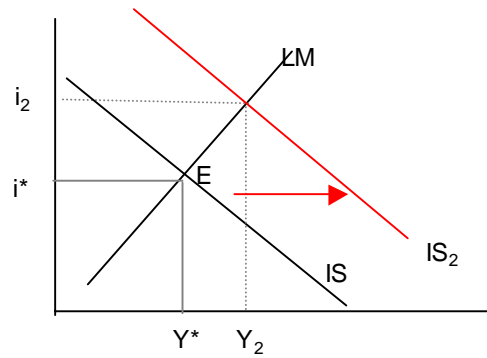
When the money demand decreases, the LM curve shifts right for a given income, Y_1 . Why? When the money demand falls, $M^s > M^D$. People buy bonds with excess money balances, price of bond rises and interest rate falls. Since output does not change, the LM curve must shift to the right as the interest rate falls to satisfy money market equilibrium.

- Equilibrium in action

- Fiscal Policy**

Suppose the government reduces taxes or increase government spending.

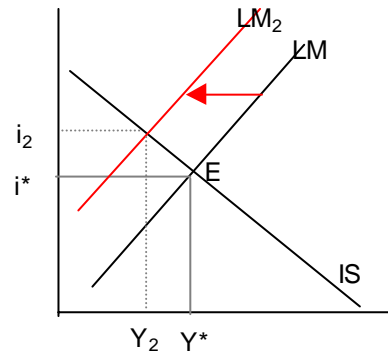
IS curve shifts right \rightarrow XSD_{goods} \rightarrow firms produce more as inventories fall \rightarrow output increases. As output increases \rightarrow XSD_{money} \rightarrow people want more \rightarrow sell bonds \rightarrow i rises \rightarrow move along LM. Overall impact, i and Y increase.



- Monetary Policy**

Suppose, M^D increases or M^S decreases \rightarrow LM curve shifts left \rightarrow XSD_{money} \rightarrow sell bonds \rightarrow interest rate increases.

As i increases \rightarrow I and NX falls \rightarrow move along IS \rightarrow fall in Y . Overall impact, interest rate rises and output falls.



🕒 The Effectiveness of Monetary vs. Fiscal Policy

So far, both fiscal and monetary policy are effective. In other words, output is responding to changes in G , T and M^s .

The relative effectiveness of fiscal and monetary policy depend on the slopes of the IS and LM curves.

Case 1: the demand for money is interest inelastic

The Classical case: suppose the demand for money does not respond to interest rates as the Keynesians suggest. Recall, Classical economists believe that the demand for money only depends on income.

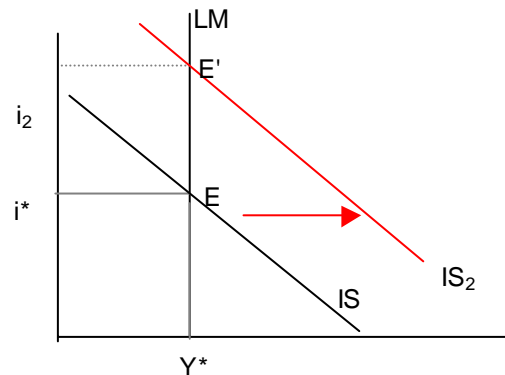
What does the LM curve look like? It is vertical. No matter how many times the interest changes, M^D is unaffected. Suppose the government wishes to reduce unemployment by increasing output.

Fiscal policy is ineffective.

If the government increases $G \rightarrow$ shift IS right \rightarrow the interest rate increases \rightarrow there is no change in Y .

Q: What is this phenomenon called?

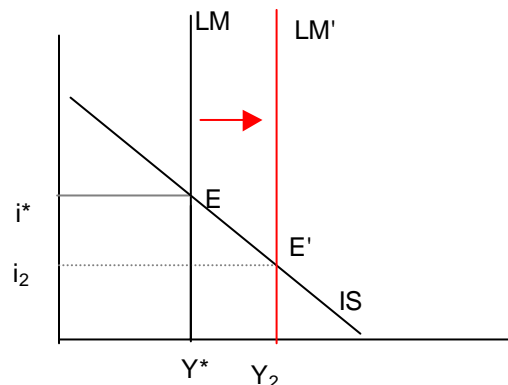
A: Complete Crowding-out.



Monetary Policy is effective.

An increase in M^s increases output and causes interest rates to fall.

There is no crowding out.



The lesson? The steeper the LM curve, the less effective fiscal policy is. Monetary policy is more effective.

Case 2: The Liquidity Trap

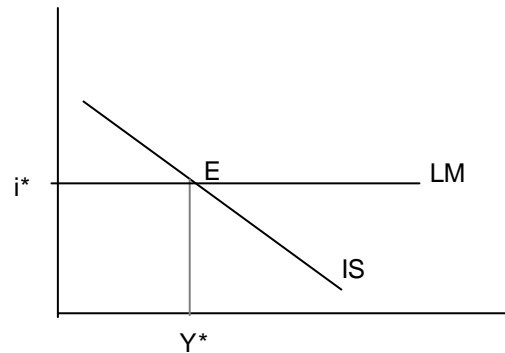
The Keynesian case: suppose the demand for money is ultra sensitive to interest. Recall, Keynesians believe that the demand for money depends on income and interest. The liquidity trap occurs because the interest rate is so low everyone expects it to rise.

What does the LM curve look like? It is horizontal. Changes in the interest rate causes large changes in M^D . Suppose the government wishes to reduce unemployment by increasing output.

Monetary Policy is not effective.

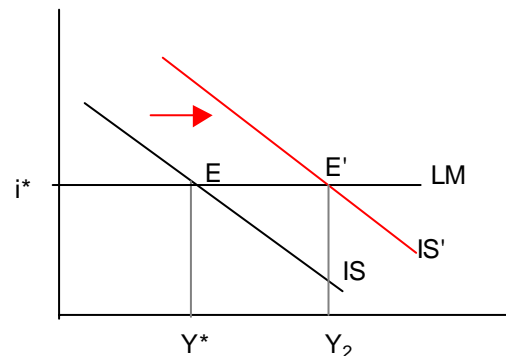
Increases in the money supply are just added to “idle” money balances. The LM curve does not shift.

The interest rate and income does not change.



Fiscal Policy is very effective.

Increases in G or decreases in T shift the IS curve right causing income to rise. Recall, $XSD_{\text{goods}} \rightarrow$ inventories fall \rightarrow firms increase output.



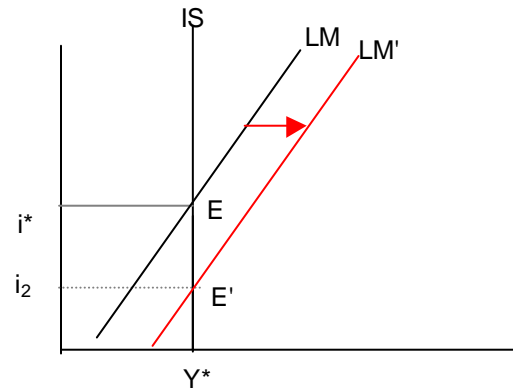
The Lesson? The more M^D is sensitive to interest rates, the flatter the LM curve. Fiscal policy is more effective than monetary policy.

Case 3: Investment is interest inelastic

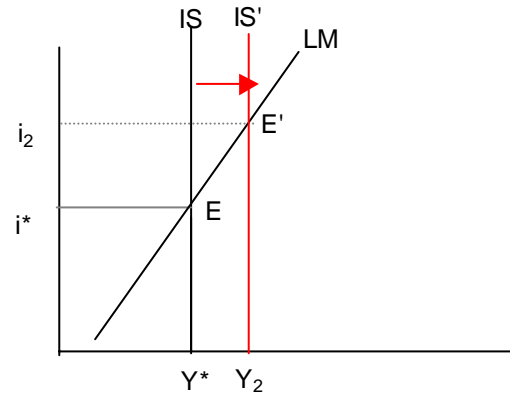
When investment is not sensitive to interest rates e.g. when investors are very pessimistic about the future, the IS curve is vertical.

Suppose the government wishes to increase output to reduce unemployment.

Monetary policy is not effective.
Increases in the money supply have no effect on output. Instead, the interest rate absorbs the increase in the money supply.



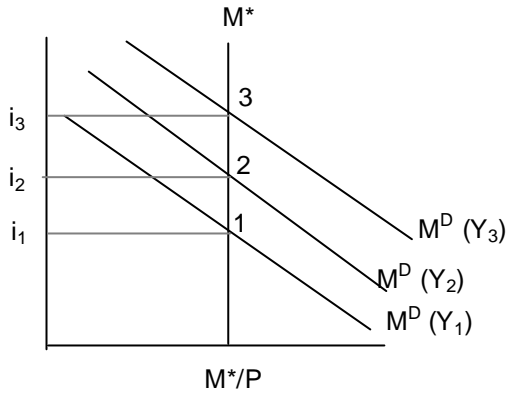
Fiscal policy is very effective.
Increases in G or decreases in T shift the IS curve right. Output increases.



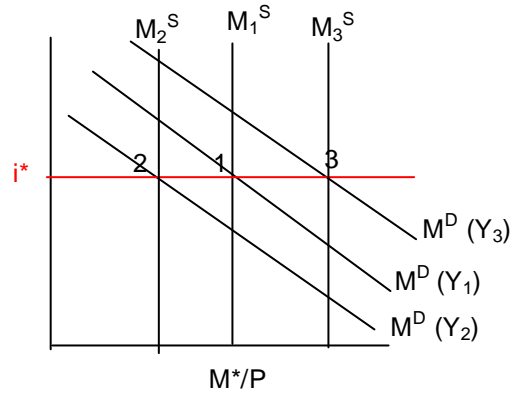
The Lesson? When the IS curve is steep, fiscal policy is relatively more effective than monetary policy.

⌚ Monetary Policy in practice and the ISLM model

⌚ Targeting the Money Supply vs. Targeting Interest Rates



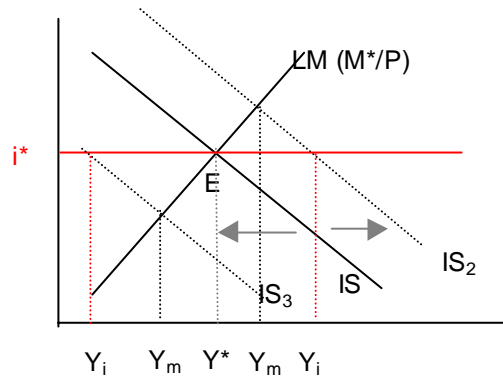
When the Fed targets the money supply, interest rates fluctuate when money demand fluctuates.



When the Fed target interest rates, money supply shifts to accommodate fluctuations in money demand. The money supply fluctuates.

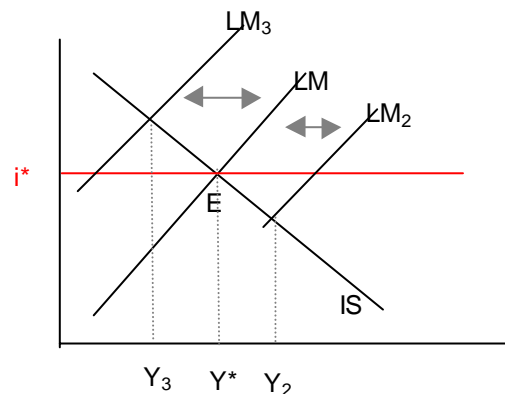
Interest rate targeting causes more dramatic fluctuations in output when the information about the IS curve is uncertain compared to Money supply targeting.

If the IS curve shifts around due to uncertainty \rightarrow the LM curve must shift to keep interest rates unchanged so output fluctuates from Y'_i to Y''_i . When the Fed target money, output fluctuates from Y'_m to Y''_m .



Interest rate targeting causes fewer fluctuations in output when the information about the LM curve is uncertain.

Output fluctuates from Y_3 to Y_2 under money targeting.



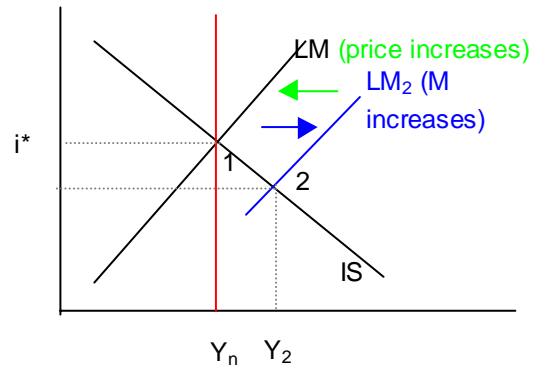
ISLM in the LR and Money Neutrality

So far, we have assumed that the price level is fixed so that nominal and real values are the same. Recall, Classical economists believe that output settles at the *natural rate of output*, Y_n , which is that level of output when prices are neither rising nor falling.

What happens to the effects of monetary policy in the LR?

When M increases, AD increases ($Y > Y_n$) causing inflationary pressures, the price level increase. The real money supply gradually declines to the original value. Therefore, the real money supply is unchanged.

In the LR, money is neutral \rightarrow it has no *real* effects.



Other examples, increases in G (decreases in T), increase in NX , increase in M^d .

ISLM and the AD Curve

We saw earlier that the AD curve could be derived from the Keynesian cross. The AD curve can also be derived from the ISLM model by allowing the price level to vary.

As the price level increases from P_0 to P_2 , the real money supply falls causing the LM curve to shift left.

As the real money supply falls, output falls. Recall, the AD curve shows the relationship between output demanded and the price level.

We can use this information to trace out the AD curve.

The AD curve is downward sloping.

