International Monetary Policy 8 IS-LM Model and Economic Policies ¹

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Lecture topic and references

- In this lecture we use the IS LM model to understand what happens as monetary and fiscal policies are used by policymakers
- Mishkin, Chapter 21

The IS - LM Model

- Let's sum up: the IS-LM model studies the equilibrium in two markets, the goods market and the money market
- ▶ The endogenous variables are income Y and the interest rate r
- The equilibrium conditions are

$$Y^* = \frac{1}{1 - mpc} \cdot (A - b \cdot r) \tag{IS}$$

$$\frac{M^s}{P} = L(\underline{Y}, \underline{r}) \tag{LM}$$

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with $A = a + I_0 + (1 - mpc) \cdot G_0$

IS - LM Model



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- An increase in the autonomous consumption a shifts the IS curve to the right
- An increase in the exogenous investment component l₀ shifts the IS curve to the right
- ► An increase in government spending *G* shifts the IS curve to the right

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- As nominal money supply increases, there is an excess of money supply and interest rate decreases. Hence, for given level of output the interest decrease and LM curve shifts down-right
- The same occurs if the level of prices decrease, as it will increase the real amount of money available in the economy
- Again, we can see this both on the space (r, M) or in the space (r, Y)



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- ▶ Suppose that the government increases *G* from *G*₀ to *G*₁. This will shift the IS curve to the right
- On impact, as G increases aggregate demand exceeds aggregate supply. Economy is still in old equilibrium (point E on next graph). Goods market is in disequilibrium, money market still in equilibrium
- Firms react by increasing production. This starts closing the gap on the goods market, but increases money demand. As money supply as not changed the money market is in disequilibrium (point B)

- Given an excess of money demand, interest rate will increase, reducing investments (point C). This helps closing the gap on goods market even further
- At the same time the increase in interest rate reduces money demand, closing the gap on the money market
- The economy converges to the new equilibrium E'
- In the end, after a fiscal expansion aggregate production increases and interest rate increases

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- Remember, we saw that under constant interest rate the fiscal multiplier is equal to 1. How about here?
- If you compare the new equilibrium with what we would have had interest rate remained constant, you see that in the IS - LM framework the fiscal multiplier is smaller than 1
- This is because the increase in interest rate triggered by the fiscal expansion has crowded out part of the investment
- This is bad news for active management of aggregate demand (we will see that the multiplier is even smaller under flexible prices)

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An Expansionary Monetary Policy

- Consider now an expansionary monetary policy, where nominal money supply increases from M^s₀ to M^s₁
- On impact, as M^s increases money supply exceeds money demand.
 Economy is still in old equilibrium (point E on next graph). Money market is in disequilibrium, goods market still in equilibrium
- Firms react to an excess of liquidity by paying lower interest rates. This starts closing the gap on the money market, since it increases money demand. But investments will increase, causing disequilibrium in the goods market (point B)

An Expansionary Monetary Policy

- Given an increase in aggregate demand, firms will produce more (point C). This helps closing the gap on goods market
- At the same time the increase in output increases money demand, closing the gap on the money market
- The economy converges to the new equilibrium E'
- In the end, after a monetary expansion aggregate production increases and interest rate decreases

An Expansionary Monetary Policy



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Exercise 1 on IS-LM and Economic Policies

- Use the IS-LM model to study the effect on output and interest rate of a contractionary monetary policy
- If the government did not want any variation in output to occur, which kind of policies should they do? Would this attenuate or exacerbate the movement in the interest rate? Explain the interpretation of the result

- In a problem set you will be asked to study fiscal policy without balanced budget
- In a problem set you will be asked to study monetary and fiscal policies jointly
- We will see that the effectiveness of monetary policy depends crucially on the exchange rate regime that the central bank is following