Putting It All Together: IS-LM Model

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Money Market

- **Demand:** Real Money Demand (also known as Real Balances Demand), which is determined by households:

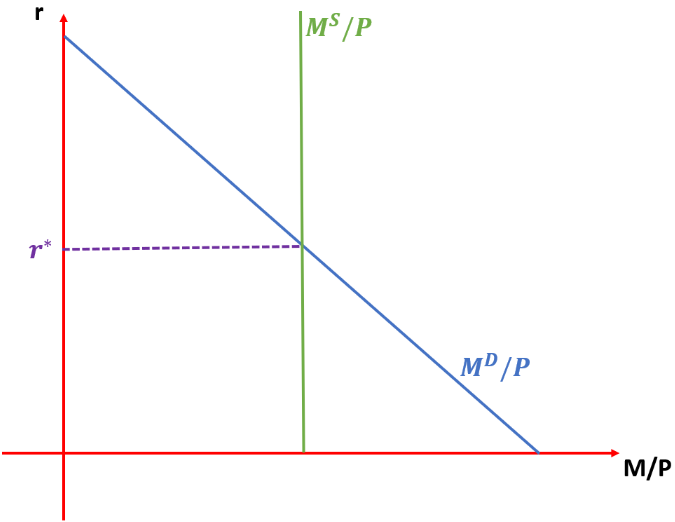
$$\frac{M^D}{P} = L(Y, i) = L(Y, r + \pi),$$

where L is a function that depends positively on Y and negatively on i, r.

- **Supply:** Real Money Supply, which is determined by the Central Bank as well as Commercial Banks:

$$\frac{M^S}{P} = \left[\frac{1 + cr}{rr + cr}\right] B.$$

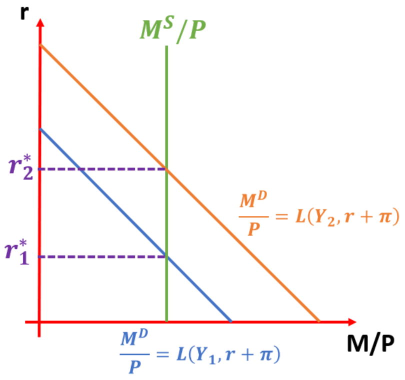
Money Market



Liquitidy-Money Curve

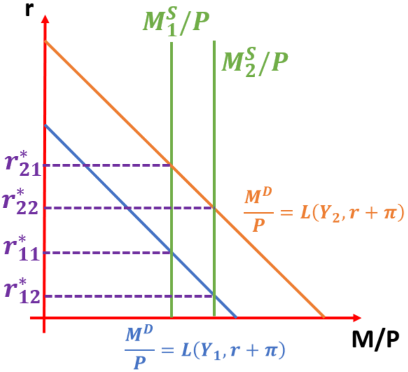
- The **Liquidity-Money Curve** (LM Curve) shows the combinations of Y and r such that the money market is in equilibrium.
- The LM Curve is upward sloping, which means that as Y increases, r also increases.
  - This is because as Y increases, the demand for money increases, and since the money supply is fixed, the interest rate must go up.

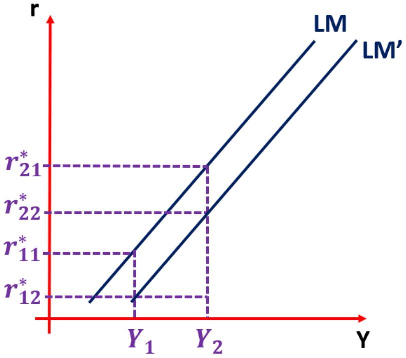
Liquitidy-Money Curve



Monetary Policy and the LM Curve

- What happens to the LM Curve when the Central Bank changes the money supply? For example:





Investment-Savings Curve

- The **Investment-Savings Curve** (IS Curve) shows the combinations of Y and r such that the goods and services market is in equilibrium.
- The LM Curve is downward sloping, which means that as r increases, Y also decreases.
  - This is because as r increases, investment (savings) decreases, which leads to a decrease in Y.

Investment-Savings Curve

- Let us assume that $I_t = sY_t - dr_t$, where $d > 0$. Let us also remember that:

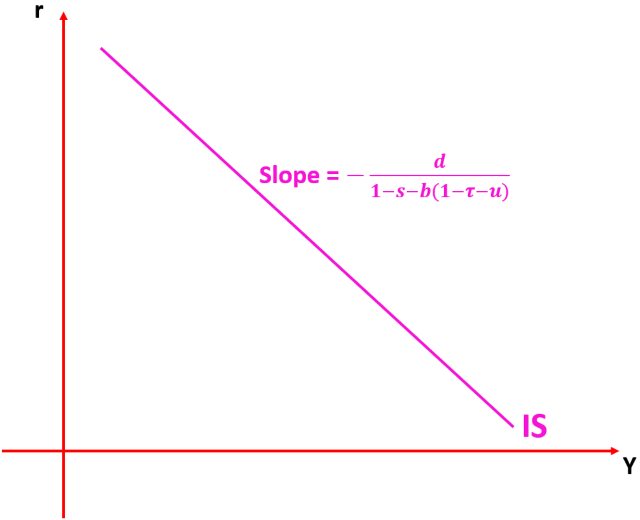
$$Y_t = C_t + I_t + G_t,$$

$$C_t = a + bY_{D,t} = a + b(1 - \tau - u)Y_t + bSS_t + buY_{N,t}.$$

- Solving for Y_t this yields:

$$Y_t = \frac{1}{1 - s - b(1 - \tau - u)} \left[a + bSS_t + buY_{N,t} + G_t - dr_t \right].$$

Investment-Savings Curve



Fiscal Policy and IS Curve

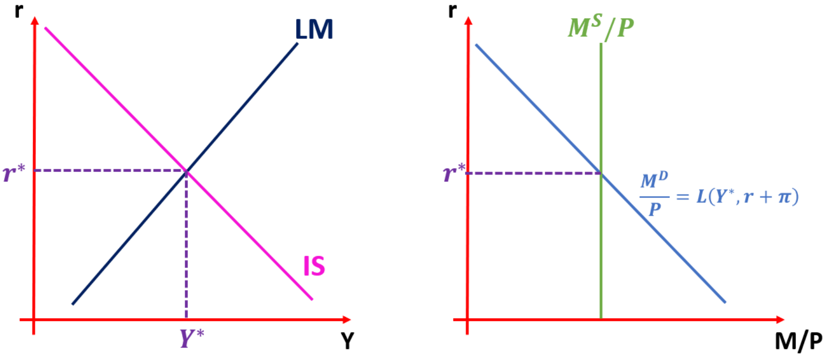
- What happens to the IS curve when the government conducts an expansionary fiscal policy?
- What is the effect on the IS curve of an increase in government expenditures?
- How about a change in taxes?

IS-LM Model

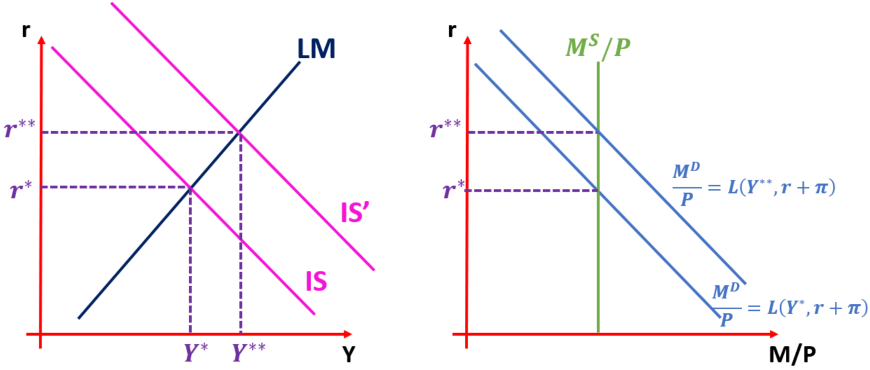
- It is a combination of the IS and LM curves, which shows the combinations of Y and r such that both the goods and services market and the money market are in equilibrium.

- Useful tool to analyze the effects of policy in the **short-run**.

IS-LM Model

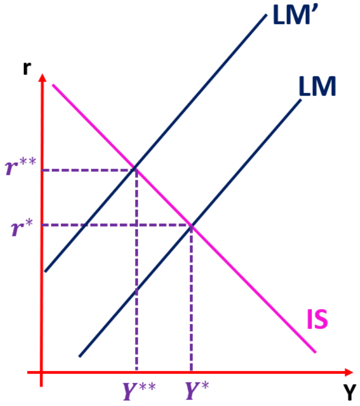


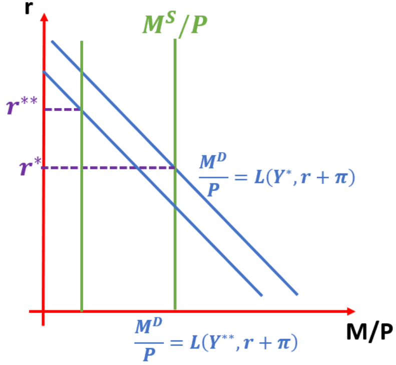
IS-LM Model: Effects of Fiscal Policy



- What is the effect of this policy on output, tax revenue, investment, consumption, and the interest rate?

IS-LM Model: Effects of Monetary Policy





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