

The IS - LM - FE Model

Chapter 9

1. Labor market equilibrium FE
2. Goods market equilibrium IS
3. Money market equilibrium LM
4. Putting the model together

1 Labor Market Equilibrium FE

- Labor market equilibrium - equates labor demand (MPN) and labor supply:

$$ND = NS$$

- Put \bar{N} in the production function to get full employment output:

$$\bar{Y} = AK^\alpha \bar{N}^{1-\alpha}$$

where K is determined by last period's decisions and cannot change in the current period.

- On a graph with real interest on the vertical axis and real output on the horizontal axis, the FE line is vertical at \bar{Y} .

- Shifts in \bar{Y} .
 - Change in K
 - Change in A
 - Change in \bar{N} due to change in
 - * MPN (capital or technology)
 - * labor supply

2 Goods Market Equilibrium IS

2.1 Derivation of IS curve in r Y plane

- Goods market equilibrium determines r such that $S = I$, where S depends positively on Y .

$$Y = C(Y - T, Y^f - T^f, r, a) + I(r, A^e) + G$$

- Choose a value for Y and label it Y_0 . Locate the equilibrium r_0 in the r Y plane.
- To get another point, choose a different value for Y and find the equilibrium r .

- The IS curve is the combination of Y and r necessary for goods market equilibrium
- Intuitively, if Y increases, saving rises above investment. For savings to equal investment at the higher Y , the real interest rate must fall, increasing investment and reducing saving.

2.2 Shifts in the IS curve

- anything that shifts I or S other than Y .
- Generally shocks which raise spending shift IS right and shocks which decrease spending shift IS left

- Rightward IS shifts – temporary increase in G , permanent increase in A , reduction in T if agents are liquidity-constrained

3 Money Market Equilibrium LM

3.1 Derivation of LM curve in r Y plane

- Money demand depends on nominal interest, not real interest, so we need some assumption about expected inflation. Assume that π^e is fixed. Now movements in nominal rates are equivalent to movements in real rates.
- With π^e and P fixed, money market equilibrium determines r such that real money supply equals real money demand.

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

- Choose a value for Y and label it Y_0 . Locate the equilibrium r_0 in the r Y plane.
- To get another point, choose a different value for Y and find the equilibrium r .
- The LM curve is the combination of Y and r , for fixed values of π^e and P , necessary for money market equilibrium.
- Intuitively, when Y increases, money demand increases requiring an increase in r to reduce money demand again.

3.2 Shifts in LM curve

- Change in real money supply due to a change in P or M .
- Change in real money demand due to change in π^e or transactions technology.

4 General Equilibrium Model of the Economy

4.1 Description

- A general equilibrium model requires all markets in the economy, labor, goods, and money (remember other asset markets are also in equilibrium given a fixed value for wealth) to be in equilibrium simultaneously.
- Graph and meaning of equilibrium.
 - What happens when three lines do not share a point?
 - Flexible prices and Classical model
 - Sticky prices and Keynesian model

- Examples of shocks

- Temporary increase in A

- Money supply increases

- Government spending increases temporarily

- A^e increases