

Practice Problems: Expectations and Monetary Policy

Econ520. Fall 2021. Prof. Lutz Hendricks. September 30, 2021

Blanchard / Johnson, Macroeconomics, 6th ed., ch. 14

1 Shocks

Derive the effects of the following shocks on short-run and medium-run Y, i, r :

1. A rise in inflation expectations.
2. An increase in money growth accompanied by an increase in inflation expectations, such that the short-run π^e equals medium run π .
3. An adverse supply shock that reduces Y_n .

1.1 Answer Sketch

The short-run model consists of IS/LM:

$$IS : Y = C(Y - T) + I(Y, i - \pi^e) + G \quad (1)$$

$$LM : M/P = YL(i) \quad (2)$$

The medium run model consists of

- IS: $Y = C(Y - T) + G + I(Y, r)$
- LM: $M/P = YL(r + \pi)$
- AS: $Y = F\left(\frac{P}{P^e} \frac{1}{1+m}, z\right) = F\left(\frac{1}{1+m}, z\right)$

1. Inflation expectations:

- (a) Short run: Higher π^e shifts the IS curve up (higher i required to keep $r = i - \pi^e$ unchanged) or right. This is a vanilla expansionary demand shock that drives up Y and i . We know that r must fall (to support the higher demand). This is the mechanism through which forward guidance works.

- (b) Medium run: Output is fixed at $Y = Y_n$. Then r is unchanged by IS. M/P must fall (to match lower money demand). This makes sense. Inflation now matches expectations and is neutral.

There is an ambiguity to the question, though. If the Fed does not adjust the money growth rate, inflation expectations eventually come down to the original inflation rate and nothing happens in the medium run.

2. This is the outcome described above where $\pi = \pi^e$ are higher. Nominal i rises. All real variables are unchanged.
3. Adverse supply shock: Nothing happens in the short run (AS does not matter yet). In the medium run, $Y = Y_n$ falls. The demand curve does not shift, so r must rise. Since π^e is fixed, i must rise and M/P must fall to clear the money market.

2 Miscellaneous

1. Why is the distinction between nominal and real interest rates important?

A: Spending decisions are affected by the real interest rate. The Fed controls the nominal interest rate. The difference is inflation expectations. The effect of a Fed action that changes i can be undone by changes in π^e (and this happens reliably in the medium run).

2. Does loose monetary policy raise or lower interest rates?

A: Both interest rates initially fall, but the nominal rate eventually rises due to higher inflation expectations.