

Homework 3
Monetary Theory and Policy: ECO 403
Due: Wednesday, April 22, 2009

Question 1.

Explain the time inconsistency problem with monetary policy rules. Give one way to make monetary policy more time consistent.

Question 2.

Can a Central Bank control both the interest rate and the high powered money stock? Explain.

Question 3.

Suppose instead of a high powered money target or an interest rate target, the FED adopts a target for the reserve-to-deposit-ratio (rd).

- a. Is rd measurable? (hint: where are bank reserves kept?)
- b. Is rd controllable? That is, how can the FED increase or decrease rd ?
- c. Suppose money demand is volatile. Which has a more predictable effect on m , a high powered money target or an rd target? Show graphically.
- d. Suppose money supply is volatile. Which has a more predictable effect on m , a high powered money target or an rd target? Show graphically.

Question 4.

Suppose the FED cares about both low inflation and low unemployment. Specifically, the FED objective is:

$$\min \left\{ \frac{1}{2} u_t^2 + 1 \cdot \pi_t^2 \right\}$$

ie the FED wants to minimize squared inflation plus squared unemployment (the FED is twice as displeased by squared inflation versus squared unemployment). Unemployment evolves according to the Lucas Monetary misperceptions model with $k \cdot a = 1$ and $NR = 2$:

$$u_t = 2 + (\pi_t^e - \pi_t)$$

- a. Compute the optimal rule and the optimal discretionary policy.
- b. Calculate the *long run* unemployment and inflation under both the optimal rule and discretion.
- c. Compute the FED's long run objective for the rule and discretion. Which better achieves the FED objective of low inflation and unemployment, the optimal rule or the optimal discretion?

- d. Suppose expectations rise (so that unemployment is above its natural rate). Does the FED raise or lower inflation? Why?

Question 5.

These questions pertain to the article passed out in class.

- a. The article points out the short run Phillips curve has flattened since the early 1980s. In what direction, then, has the parameter a been changing? Explain why the parameter a has been changing.
- b. Explain one advantage the FED has with a flatter Phillips curve. Use the Phillips curve graph to illustrate your point.
- c. Graphically show the problem discussed in the last paragraph of the article: starting with a flat Phillips curve with expectations at 2%, an overly aggressive response to the credit market problems causes inflationary expectations to subsequently increase. Under what circumstances is this possibility a serious danger as the article implies?