

Problem Set 5: New Keynesian Model

New Keynesian Model

Exercise 1. In ‘The Ends of Four Big Inflations’, Thomas Sargent observed how large hyperinflations ended without recessions. How could this be reconciled with the New Keynesian Phillips Curve?

Exercise 2. If prices are flexible in the New Keynesian model, then money is neutral, yet output is inefficiently low. Is this statement true or false?

Exercise 3. Intuitively, how would a low marginal disutility of labour supply affect the coefficient on the output gap in the NKPC? What are the implications of this for the effectiveness of monetary policy?

Exercise 4. Suppose the bank underestimates potential output, y_n . According to the three equation New Keynesian model, what are the consequences?

Exercise 5. Rewrite the three-equation New Keynesian model, explicitly writing the real interest rate in terms of the nominal rate and expected inflation. If there is an oil shock, and the central bank does *not* follow the *Taylor principle*, explain what happens.

Exercise 6. Consider the three-equation New Keynesian Phillips Curve when there are no shock terms. In the NKPC, assume the coefficient on expected inflation is one. Show that if the bank is a strict inflation targeter (i.e., it only cares about inflation), it also maintains output at potential. (This is called the *divine coincidence*).

Exercise 7. Suppose the economy is at potential and government expenditure falls. Explain what happens in the basic New Keynesian model presented in class. What happens to the deviation of output from its socially efficient level?

Exercise 8. The hybrid New Keynesian Phillips curve is given by

$$\pi_t = \gamma(y_t - y_n) + \xi\phi E_t(\pi_{t+1}) + (1 - \xi)\phi\pi_{t-1}$$

As ξ tends to one, does it become easier or harder to reduce inflation? What are the implications for inflation dynamics?