

Econometrics

1. The Mundell-Fleming Model

Assume Japan has a flexible exchange rate and perfect capital mobility (which is an accurate description).

(a) What is the effect of increasing the Japanese money supply in the Mundell-Fleming model with static expectations? What happens to output and the exchange rate? Draw a graph in (ϵ, Y) space to illustrate your answer.

(b) Now assume that the money supply has not changed, but instead there has been a tax cut. Use the Mundell-Fleming model with static expectations to analyze the effects of the tax cut in Japan on output, the interest rate and the exchange rate. Draw a diagram in (ϵ, Y) space to illustrate your answer.

(c) Now suppose that investors have rational expectations. Show that the condition $i = i^*$ no longer holds and explain why. What condition now holds? Using this condition, show that there will be overshooting if Japan unexpectedly increases its money supply. Draw graphs in (i, Y) and (ϵ, Y) spaces to illustrate your answer.

(d) Now assume imperfect capital mobility and still assume rational expectations. How does an increase in the foreign interest rate i^* affect the Japanese IS curve? Hint: Use the balance of payments equation.

(e) What are the effects of this change on output, the exchange rate, and the price level with imperfect capital mobility and rational expectations? Draw graphs in the (ϵ, Y) and (i, Y) spaces in your answer. How is your answer different from part (b)?

2. Unemployment and the Labor Market

Consider the sticky wage model where the nominal wage is fixed at $W = \bar{W}$ as a result of collective wage bargaining by unions, and labor, L , is the only factor of production, such that output is given by $Y = F(L)$, where $F'(L) > 0, F''(L) < 0$. Finally, assume firms are competitive and hire labor until the marginal product of labor equals the real wage: $F'(L) = W/P$. Note: For the remainder of this question, whenever you see the word 'unemployment' you should interpret this as 'involuntary unemployment'.

(a) Assuming an upward sloping labor supply curve, use the above setup to draw a labor market equilibrium in $((W/P), L)$ space such that there is a positive level of unemployment, and label the equilibrium level of employment as L^* . Label the level of unemployment as U . Suppose the government in this economy passes a legislation that seriously weakens the bargaining power of unions, reducing the fixed nominal wage in the economy. How will this affect the unemployment level? Use your graph to explain your answer.

Now consider the second labor market model discussed in class. Assume that wages are flexible, but prices are fixed at $P = \bar{P}$. Again, assume an upward sloping labor supply curve, and assume firms will meet demand at the prevailing price as long as it does not exceed the level where marginal cost equals price; we let Y^{MAX} denote this level of output.

(b) Show the labor market equilibrium of this model in $((W/P), L)$ space. [Be sure to label the labor supply, effective labor demand curve, equilibrium labor and wages]. Why didn't we use this model to explain how unemployment would change in part (a)?

(c) How will real wages, employment, and output respond to a negative aggregate demand shock in this model? Please show this graphically. Given your results, describe the effect of a contractionary monetary policy on income, the real wage, and unemployment in this economy.

(d) The New Deal in 1933 allowed formation of labor unions. Which model accounts for the fact that these unions negotiated more in the interests of the current workers and their members rather than in the interests of the entire labor force? Use this model to explain the more persistent unemployment experienced in the later 1930s.

(e) Which of these models of the labor market is consistent with Nickell's analysis? According to his empirical results, what are the various policies and rules that affect unemployment in European countries and how do they affect differentially short-term and long-term unemployment?

3. The Great Depression

(a) Using the Mundell-Fleming model with fixed exchange rates, describe the position and actions of the UK within the gold standard in 1931. What determined expectations of the exchange rate in the summer of 1931? Draw a graph in (ϵ, Y) space to illustrate your answer. Make sure you work with rational expectations, making use of the uncovered interest parity condition.

(b) Analyze similarly the position and actions of the US.

(c) How and why would current exchange rate regimes make the adjustment of global imbalances during Great Depression easier?

(d) How do financial crises in recent decades compare with those of the 1930s? What kinds of policies have been proposed to avoid crises today? In general, what are the costs and benefits these policies have?

(e) Consider the current example of global imbalances with US negative net exports and positive capital inflows. If foreign agents expect a depreciation of the US dollar and therefore no longer want to hold dollars, explain how this will lead to an adjustment of the imbalance. Assume rational expectations and illustrate your answer in (ϵ, Y) space.