Chapter 4
Slow Money Wages

1. The Model

In this chapter, money wages are assumed to be slow. Here the focus is on producer price inflation in Germany and France, respectively. Producer price inflation in Germany refers to the price of German goods. And producer price inflation in France refers to the price of French goods. Take for example an increase in German government purchases. Then what will be the time paths of German money wages and the price of German goods? What will be the time paths of French money wages and the price of French goods? Further, what will be the time path of inflation in Germany? And what will be the time path of inflation in France? Alternatively, take an increase in union money supply. Conversely, what monetary policy is needed to fight inflation in the union? And what would be the effects of downwards sticky wages?

The analysis is carried out within a stylized model. The union countries are the same size and have the same behavioural functions. The model can be represented by a system of four equations:

\[
\begin{align*}
Y_1 &= \alpha M / P_1 + \beta A_1 - \beta A_2 \\
Y_2 &= \alpha M / P_2 + \beta A_2 - \beta A_1 \\
\hat{P}_1 &= \lambda (Y_1 - \bar{Y}_1) \\
\hat{P}_2 &= \lambda (Y_2 - \bar{Y}_2)
\end{align*}
\]  

(1)  
(2)  
(3)  
(4)

According to equation (1), German output \( Y_1 \) depends on union money supply \( M \), the price of German goods \( P_1 \), the autonomous demand for German goods \( A_1 \), and the autonomous demand for French goods \( A_2 \). It does not depend on the price of French goods \( P_2 \). Here \( \alpha \) and \( \beta \) are positive coefficients. According to equation (2), French output \( Y_2 \) depends on union money supply, the price of French goods, the autonomous demand for French goods, and the
autonomous demand for German goods. It does not depend on the price of German goods. An increase in union money supply raises both German output and French output. An increase in the price of German goods lowers German output. An increase in the price of French goods lowers French output. An increase in the autonomous demand for German goods raises German output. On the other hand, it lowers French output to the same extent. An increase in the autonomous demand for French goods raises French output. On the other hand, it lowers German output to the same extent. Essentially this is well known from Chapter 1.

Equation (3) is the dynamic price equation of Germany. $\bar{Y}_1$ designates the full-employment output of Germany. $\bar{P}_1$ is the rate of inflation of German goods. Put differently, it is producer price inflation in Germany. And $\lambda$ is the speed of adjustment. If $Y_1 > \bar{Y}_1$, then $\hat{P}_1 > 0$. But if $Y_1 < \bar{Y}_1$, then $\hat{P}_1 < 0$. That means, if there is overemployment in Germany, the price of German goods will grow period by period. The other way round, if there is unemployment in Germany, the price of German goods will decline period by period. Correspondingly, Figure 1 shows producer price inflation in Germany as a function of German output. Equation (4) is the dynamic price equation of France. $\bar{Y}_2$ symbolizes the full-employment output of France. $\bar{P}_2$ is the rate of inflation of French goods. In other words, it is producer price inflation in France. Correspondingly, Figure 2 shows producer price inflation in France as a function of French output.

In equations (1) until (4), the exogenous variables are union money supply, the price of German goods, the price of French goods, the autonomous demand for German goods, the autonomous demand for French goods, the full-employment output of Germany, and the full-employment output of France. The endogenous variables are German output, French output, producer price inflation in Germany, and producer price inflation in France.

For the remainder of this section, have a closer look at the long-run equilibrium. In the steady state, producer price inflation in Germany and France is zero $\bar{P}_1 = \bar{P}_2 = 0$. Substitute this into equations (3) and (4) to find out:

$$Y_1 = \bar{Y}_1$$

$$Y_2 = \bar{Y}_2$$

(5)

(6)