Chapter 2
The World as a Whole

1. The Model

Understanding the world as a whole is helpful in understanding the world of two monetary regions. Consider for example an increase in world money supply. Then what will be the effect on the world interest rate, and what on world output? Alternatively consider an increase in world nominal wages. Again what will be the effect on the world interest rate, and what on world output? Of course, the world economy is a closed economy.

Let us begin with the goods market. The behavioural functions are as follows:

$$C = cY \tag{1}$$

$$I = br^{-\varepsilon} \tag{2}$$

Equation (1) is the consumption function. Here C denotes consumption, Y is income, and c is the marginal consumption rate with $0 < c < 1$. Equation (1) states that consumption is a positive function of income. Equation (2) is the investment function. Here I symbolizes investment, r is the interest rate, ε is the interest elasticity of investment with $\varepsilon > 0$, and b is a shift parameter with $b > 0$. Equation (2) states that investment is a negative function of the interest rate. A 1 percent increase in the interest rate causes an ε percent decline in investment. Aggregate supply is determined by aggregate demand $Y = C + I$. Taking account of the behavioural functions, we arrive at the goods market equation:

$$Y = cY + br^{-\varepsilon} \tag{3}$$

Let us go on to the money market. The behavioural functions look like this:

$$L = kPYr^{-\eta} \tag{4}$$

$$M = \text{const} \tag{5}$$

Equation (4) is the money demand function. Here L stands for nominal money demand, Y is real income, P is the price level, PY is nominal income, r is the interest rate, η is the interest elasticity of money demand with $\eta > 0$, and k is a shift parameter with $k > 0$. Equation (4) states that money demand is a positive function of real income, a positive function of the price level, and a negative function of the interest rate. Obviously, a 1 percent increase in real income causes a 1 percent increase in money demand. Similarly, a 1 percent increase in the price level causes a 1 percent increase in money demand. And a 1 percent increase in the interest rate causes an η percent decline in money demand. Equation (5) is the money supply function. It states that the central bank sets the nominal supply of money. Further, the nominal demand for money is equal to the nominal supply of money L = M. Taking account of the behavioural functions, we reach the money market equation:

$$kPYr^{-\eta} = M = \text{const} \tag{6}$$

The production function is characterized by fixed coefficients:

$$Y = aN \tag{7}$$

Here N designates labour input, a is labour productivity, and Y is output. Accordingly, labour demand is:

$$N = Y / a \tag{8}$$

That is to say, a 1 percent increase in output requires a 1 percent increase in labour demand. Conversely, a 1 percent increase in labour productivity allows a 1 percent reduction in labour demand. Firms set prices as a markup over unit labour cost:

$$P = gW / a \tag{9}$$

Here W is the nominal wage rate, W/a is unit labour cost, g is the markup factor, and P is the price level. A 1 percent increase in nominal wages causes a 1 percent increase in the price level. The other way round, a 1 percent increase in labour productivity causes a 1 percent decline in the price level.