Eco 242   Eshragh Motahar
MACROECONOMIC THEORY AND POLICY

The Phillips Curve, the Natural Rate of Unemployment, and Inflation

1. Background

Revisit the original price-setting equation: $\qquad P = P^e(1+m)F(u,z)$ $\qquad\qquad$ (1)

Assume the following simple functional form: $\qquad F(u,z) = 1 - \alpha u + z$ $\qquad\qquad$ (2)

Substituting from (2) into (1) we get: $\qquad P = P^e(1+m)(1-\alpha u + z)$ $\qquad\qquad$ (3)

After some manipulation (see p. 159 of the textbook) we get:

$$\pi = \pi^e + (m+z) - \alpha u \qquad\qquad (4)$$

Or, equivalently:

$$\pi_t = \pi_t^e + (m+z) - \alpha u_t \qquad\qquad (5)$$

2. The Early Phillips Curve

$$\pi_t = (m+z) - \alpha u_t \qquad\qquad (6)$$

3. Expectation Formation

$$\pi_t^e = \theta \pi_{t-1} \qquad\qquad (7)$$

4. The Natural Rate of Unemployment

When $\pi_t = \pi_t^e$, u will be equal to u_n. From (5) above we get:

$$0 = (m+z) - \alpha u_n \qquad\qquad (8)$$

Solving for u_n we get:

$$u_n = \frac{m+z}{\alpha} \qquad\qquad (9)$$

Now, rewrite (5) as:

$$\pi_t - \pi_t^e = -\alpha(u_t - \frac{m+z}{\alpha}) \qquad\qquad (10)$$

Now, from (9) substitute into (10):

$$\pi_t = \pi_t^e - \alpha(u_t - u_n) \qquad\qquad (11)$$

The above is derived from Blanchard, 7th edition.