

Model 5 – Dynamic Aggregate Demand – Aggregate Supply

Mankiw, Macroeconomics, Eighth Edition, Chapter 15

1. IS curve becomes: $Y(t) = Y^p(t) - \alpha^*(r(t) - \rho) + \varepsilon(t)$ where ε is distributed normally
2. Fisher Equation: $r(t) = i(t) - \pi^e(t, t+1)$
Where $\pi^e(t, t+1)$ is expected inflation rate from t to $t + 1$
3. Phillips Curve: $\pi(t) = \pi^e(t-1, t) + \Phi^*(Y(t) - Y^p(t)) + v(t)$
4. Inflation Expectations: $\pi^e(t, t+1) = \pi(t-1, t)$ or $\pi(t)$ – Naïve expectations
5. Monetary Policy Rule: $i(t) = \rho + \theta_\pi^*(\pi(t) - \pi^*) + \theta_y^*(Y(t) - Y^p(t))$
 - If $\theta_y = 0$ then only inflation matters;
 - If $\theta_\pi = 0$ then only output matters

Dynamic Aggregate Demand:

$$Y(t) = Y^p(t) - [\alpha^*\theta_\pi / (1 + \alpha^*\theta_y)]^*(\pi(t) - \pi^*) + [1 / (1 + \alpha^*\theta_y)]^*\varepsilon(t)$$

with slope $\Delta\pi / \Delta Y = - \frac{(1 + \alpha^*\theta_y)}{\alpha^*\theta_\pi}$

Dynamic Aggregate Supply:

$$\pi(t) = \pi^e(t-1, t) + \Phi^*(Y(t) - Y^p(t)) + v(t) \text{ where } \pi^e(t-1, t) = \pi(t-1)$$

with slope $\Delta\pi / \Delta Y = \Phi$

Exogenous Variables: $Y^p, \rho, \varepsilon(t), v(t), \pi(t)^*$