

Lecture 18: The New Keynesian Model I

ECON 30020: Intermediate Macroeconomics

Prof. Eric Sims

University of Notre Dame

Spring 2026

Readings

GLS Ch. 24 (the New Keynesian demand side)

New Keynesian Models

At risk of oversimplification, New Keynesian models are the leading alternative to the neoclassical / RBC model

“New” Keynesian: neoclassical backbone to these models. Just a twist on neoclassical model, not a fundamentally different framework

In the “medium run” / “long run” models are the same

Short-run difference: nominal rigidities. Wages and/or prices are imperfectly flexible. These frictions not operative over longer periods

New Keynesian Implications

1. Money is non-neutral
2. Demand shocks matter for output
3. Equilibrium of the model is inefficient
4. There is therefore scope for policy to improve outcomes in short run

Demand and Supply

The demand side of the neoclassical and New Keynesian models are the same

Differences arise on the supply side

Two basic variants (or mixture of the two):

- price stickiness
- nominal wage stickiness (GLS Appendix D)

This will require some change in the labor market – either the firm (price stickiness) or household (wage stickiness) is off its demand or supply schedule

We will focus on two versions of the sticky price model in class – the “Simple” sticky price model and “Partial” sticky price model

Demand Side

In the neoclassical model, the classical dichotomy held: we could separately think about real and nominal demand

Will no longer be true!

Will use the aggregate demand (AD) curve to jointly summarize real and nominal demand

- IS curve: same as before (real)
- LM Curve (liquidity = money): summarizes market for money

$IS + LM = AD$

Can use AD in the neoclassical model, too!

Demand Equations

$$C_t = C^d(Y_t - G_t, Y_{t+1} - G_{t+1}, r_t)$$

$$I_t = I^d(r_t, A_{t+1}, f_t, K_t)$$

$$Y_t = C_t + I_t + G_t$$

$$M_t = P_t M^d(i_t, Y_t)$$

$$r_t = i_t - \pi_{t+1}^e$$

IS Curve

$$C_t = C^d(Y_t - G_t, Y_{t+1} - G_{t+1}, r_t)$$

$$I_t = I^d(r_t, A_{t+1}, f_t, K_t)$$

$$Y_t = C_t + I_t + G_t$$

$$M_t = P_t M^d(i_t, Y_t)$$

$$r_t = i_t - \pi_{t+1}^e$$

LM Curve

$$C_t = C^d(Y_t - G_t, Y_{t+1} - G_{t+1}, r_t)$$

$$I_t = I^d(r_t, A_{t+1}, f_t, K_t)$$

$$Y_t = C_t + I_t + G_t$$

$$M_t = P_t M^d(i_t, Y_t)$$

$$r_t = i_t - \pi_{t+1}^e$$

IS curve

IS (investment = saving): set of (r_t, Y_t) pairs where income equals expenditure (market for loanable funds clears) and household and firm both behave optimally

Algebraically:

$$Y_t = C^d(Y_t - G_t, Y_{t+1} - G_{t+1}, r_t) + I^d(r_t, A_{t+1}, f_t, K_t) + G_t$$

Negative relation between r_t and Y_t ; change in anything else (e.g., G_t) results in a shift of the curve

LM Curve

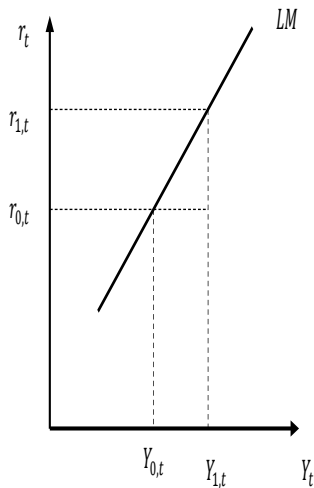
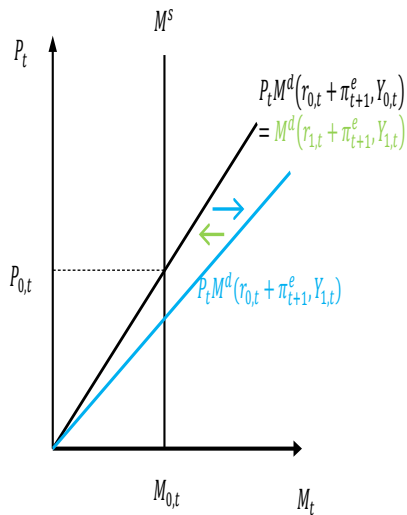
LM (liquidity = money): set of (r_t, Y_t) pairs where money market clears

Algebraically:

$$M_t = P_t M^d(r_t + \pi_{t+1}^e, Y_t)$$

Positive relationship between r_t and Y_t ; change in anything else (e.g., P_t or M_t) results in a shift of the curve

Deriving the LM Curve



The AD Curve

The AD curve is the set of (P_t, Y_t) pairs where the economy is on both the IS and LM curves

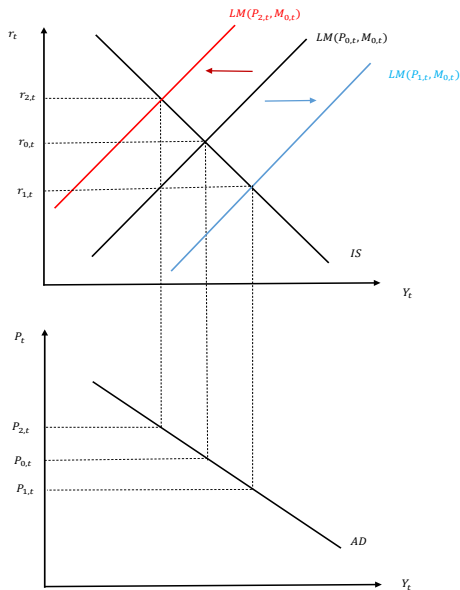
Algebraically (messy and implicit): solve for r_t in either IS or LM, plug into the other, and get an equation in P_t and Y_t

Graphically: P_t determines position of LM curve, which given a position of the IS curve, determines a Y_t (and r_t)

A higher P_t means the LM curve shifts in, which results in a lower Y_t

Hence, the AD curve is downward-sloping

Deriving the AD Curve



Shifts of the AD Curve

The AD curve will shift if either the IS or LM curves shift (for reason other than P_t , which would be a movement along the AD curve)

This means that the AD curve will shift right if:

- A_{t+1} or G_t increase (IS shifts)
- f_t or G_{t+1} decrease (IS shifts)
- M_t or π_{t+1}^e increase (LM shifts)

The Supply Side

Generically, the AS curve is the set of (P_t, Y_t) pairs (i) consistent with the production function, (ii) some notion of labor market equilibrium, and (iii) any potential exogenous restriction on nominal price or wage adjustment

Can use the AS curve to summarize the neoclassical model if we want:

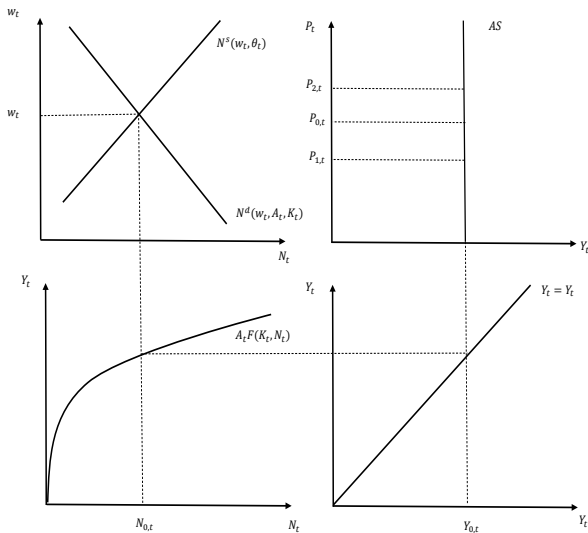
$$N_t = N^s(w_t, \theta_t)$$

$$N_t = N^d(w_t, A_t, K_t)$$

$$Y_t = A_t F(K_t, N_t)$$

Since P_t does not appear in these equations, the AS curve would be vertical in the neoclassical model

The Neoclassical AS Curve



Neoclassical IS-LM-AD-AS Equilibrium

