BAREBONES MODEL:

VARIABLES:

\( Y \equiv \) output  \( \dot{Y} \equiv \) output growth  \( \dot{Y} \equiv \) LTSG

\( LF \equiv \) labor force  \( \dot{LF} \equiv \) labor force growth

\( LP \equiv \) labor productivity  \( \dot{LP} \equiv \) labor productivity growth

\( E_t \equiv \) Employment level  \( \dot{E} \equiv \) employment growth

\( P \equiv \) price level  \( \dot{P} \equiv \) inflation rate  \( \pi^* \equiv \) target inflation rate

\( POP \equiv \) working age population  \( \dot{POP} \equiv \) working age population growth

\( U_t \equiv \) Unemployment level  \( U \equiv \) unemployment rate  \( U^* \equiv \) NAIRU

\( f \equiv \) fed funds rate  \( r \equiv \) real fed funds rate  \( r^* \equiv \) neutral \( r \)

EQUATIONS:

(1) Output equation  \( \dot{Y} = \dot{LF} + \dot{LP} \)

(2) IS Curve  \( Y_t = A - a_r_t \)

(3) Phillips Curve  \( \pi_t = \pi_e + \alpha(U^* - U_t) \)

(4) Okun’s Law  \( \dot{Y}_t = \dot{Y}^* + c(U_{t-1} - U_t) \)

(5) Taylor Rule  \( f = \pi + \alpha(\pi - \pi^*) + \beta \cdot (U^*-U) + r^* \)

Expanded Equations:

(1.1)  \( \dot{LP} = f(K, L_E, S) \)  \( K \equiv \) capital stock  \( L_E \equiv \) efficiency of labor  \( S \equiv \) Solow residual

(1.2)  \( \dot{LF} = POP \times LFPR \)

(1.3)  \( \dot{LF} = \) (POP\_16-24\*LFPR\_16-24) + (POP\_25-54\*LFPR\_25-54) + (POP\_55-64\*LFPR\_55-64) + (POP\_65\*LFPR\_65)

(1.4)  \( LFPR = LF/POP \)

(1.5)  \( U_L = LF - L_E \)  \( U_L \neq POP - L_E \)

(1.6)  \( U = (U_L/LF) \times 100 \)

Real World Practices:

(1.1)  \( \dot{LP} \) shifts periodically, and defies prediction. Forecasters extrapolate.

(1.2)  \( \pi_e \) are backward looking, excepting amid large oil and/or TW$ shocks

(1.3)  \( U^* \) is identifiable, after the fact. We only know we pierced \( U^* \), when \( \pi \) accelerates

(1.4)  \( r^* \) changes, cycle to cycle.

(1.5)  \( \alpha \) Phillips Curve parameter, appears to be quite low, amid ‘anchored’ \( \pi \) expectations

(1.6)  \( \beta \) Taylor rule parameter, historically is “1", when using \( U \) to calibrate resource use.