$$c_t = c_1 \, c_{t+1} + (1 - c_1) \, c_{t-1} - c_2 \, (r_t - \pi_{t+1} - \varepsilon_{b_t}) \tag{1}$$

$$i_t = i_1 \, i_{t-1} + (1 - i_1) \, i_{t+1} + i_2 \, q_t + \varepsilon_{q_t} \tag{2}$$

$$q_t = q_1 \, r^k_{\,t+1} - (r_t - \pi_{t+1} - \varepsilon_{b_t}) + (1 - q_1) \, q_{t+1} \tag{3}$$

$$y_t = c_t \, \frac{\bar{c}}{y} + i_t \, \frac{\bar{i}}{y} + \frac{\bar{v}}{y} \, v_t + \varepsilon_{g_t} \tag{4}$$

$$y_t = \psi_p \, (\alpha \, k_t + (1 - \alpha) \, n_t + \varepsilon_{a_t}) \tag{5}$$

$$\pi_t - \gamma_p \, \pi_{t-1} = \pi_1 \, (\pi_{t+1} - \pi_t \, \gamma_p) - \pi_2 \, (100 \, \varepsilon_{p_t} - mc_t) \tag{6}$$

$$mc_t = (1 - \alpha) \, w_t + \alpha \, r^k_{\,t} - \varepsilon_{a_t} \tag{7}$$

$$\pi_t + w_t - w_{t-1} = \pi_{t-1} \, \gamma_w + \beta \, (\pi_{t+1} + w_{t+1} - w_t - \pi_t \, \gamma_w) - w_1 \, (\omega \, u_t - 100 \, \varepsilon_{w_t}) \tag{8}$$

$$\omega \, u_t = w_t - (z_t + \varepsilon_{s_t} + \omega \, e_t) \tag{9}$$

$$\omega \, u^n_{\,t} = 100 \, \varepsilon_{w_t} \tag{10}$$

$$l_t = u_t + e_t \tag{11}$$

$$z_t = (1 - v) \, z_{t-1} + \frac{v}{1 - \frac{h}{\tau}} \, \left(c_t - c_{t-1} \, \frac{h}{\tau} \right) \tag{12}$$

$$\bar{k}_t = k_1 \, \bar{k}_{t-1} + i_t \, (1 - k_1) + \varepsilon_{q_t} \, k_2 \tag{13}$$

$$k_t = v_t + \bar{k}_{t-1} \tag{14}$$

$$v_t = r^k_{\,t} \, \frac{1 - \psi}{\psi} \tag{15}$$

$$k_t = n_t + w_t - r^k_{\,t} \tag{16}$$

$$r_t = \rho_i \, r_{t-1} + (1 - \rho_i) \, \left(\pi_t \, r_\pi + r_y \, y^{gap}_{\,t} + r_{\Delta y} \, \left(y^{gap}_{\,t} - y^{gap}_{\,t-1} \right) \right) - \varepsilon_{r_t} \tag{17}$$

$$e_t - e_{t-1} = \beta \, (e_{t+1} - e_t) + e_1 \, (n_t - e_t) \tag{18}$$

$$c^f_{\,t} = c_1 \, c^f_{\,t+1} + (1 - c_1) \, c^f_{\,t-1} - c_2 \, \left(r^f_{\,t} - \varepsilon_{b_t} \right) \tag{19}$$

$$i^f_{\,t} = \varepsilon_{q_t} + i_1 \, i^f_{\,t-1} + (1 - i_1) \, i^f_{\,t+1} + i_2 \, q^f_{\,t} \tag{20}$$

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$$q^f{}_t = q_1 \, r^{k,f}{}_{t+1} - \left(r^f{}_t - \varepsilon_{b\,t}\right) + (1 - q_1) \, q^f{}_{t+1} \tag{21}$$

$$y^f{}_t = \varepsilon_{g\,t} + \frac{\bar{c}}{y} \, c^f{}_t + \frac{\bar{i}}{y} \, i^f{}_t + \frac{\bar{v}}{y} \, v^f{}_t \tag{22}$$

$$y^f{}_t = \psi_p \left(\varepsilon_{a\,t} + \alpha \, k^f{}_t + (1 - \alpha) \, n^f{}_t\right) \tag{23}$$

$$0 = (1 - \alpha) \, w^f{}_t + \alpha \, r^{k,f}{}_t - \varepsilon_{a\,t} \tag{24}$$

$$w^f{}_t = \varepsilon_{s\,t} + z^f{}_t + \omega \, n^f{}_t \tag{25}$$

$$z^f{}_t = (1 - v) \, z^f{}_{t-1} + \frac{v}{1 - \frac{h}{\tau}} \left(c^f{}_t - \frac{h}{\tau} \, c^f{}_{t-1}\right) \tag{26}$$

$$\bar{k}^f_t = \varepsilon_{q\,t} \, k_2 + k_1 \, \bar{k}^f_{t-1} + (1 - k_1) \, i^f{}_t \tag{27}$$

$$k^f{}_t = v^f{}_t + \bar{k}^f_{t-1} \tag{28}$$

$$v^f{}_t = \frac{1 - \psi}{\psi} \, r^{k,f}{}_t \tag{29}$$

$$k^f{}_t = n^f{}_t + w^f{}_t - r^{k,f}{}_t \tag{30}$$

$$e^f{}_t - e^f{}_{t-1} = \beta \left(e^f{}_{t+1} - e^f{}_t\right) + e_1 \left(n^f{}_t - e^f{}_t\right) \tag{31}$$

$$y^{gap}{}_t = y_t - y^f{}_t \tag{32}$$

$$\varepsilon_{a\,t} = \rho_a \, \varepsilon_{a\,t-1} + \eta_{a_t} \tag{33}$$

$$\varepsilon_{b\,t} = \rho_b \, \varepsilon_{b\,t-1} + \eta_{b_t} \tag{34}$$

$$\varepsilon_{g\,t} = \rho_g \, \varepsilon_{g\,t-1} + \eta_{g_t} + \eta_{a_t} \, \rho_{ga} \tag{35}$$

$$\varepsilon_{p\,t} = \rho_p \, \varepsilon_{p\,t-1} + \eta_{p_t} - \mu_p \, AUX\_EXO\_LAG\_54\_0_{t-1} \tag{36}$$

$$\varepsilon_{q\,t} = \rho_q \, \varepsilon_{q\,t-1} + \eta_{q_t} \tag{37}$$

$$\varepsilon_{r\,t} = \rho_r \, \varepsilon_{r\,t-1} + \eta_{r_t} \tag{38}$$

$$\varepsilon_{s\,t} = \rho_s \, \varepsilon_{s\,t-1} + \eta_{s_t} \tag{39}$$

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$$\varepsilon_{wt} = \rho_w \, \varepsilon_{wt-1} + \eta_{wt} - \mu_w \, AUX\_EXO\_LAG\_56\_0_{t-1} \tag{40}$$

$$\Delta y^{obs}{}_t = y_t + \bar{\tau} + \bar{e} - y_{t-1} \tag{41}$$

$$\Delta c^{obs}{}_t = c_t + \bar{\tau} + \bar{e} - c_{t-1} \tag{42}$$

$$\Delta i^{obs}{}_t = i_t + \bar{\tau} + \bar{e} - i_{t-1} \tag{43}$$

$$\pi^{obs}{}_t = \pi_t + \bar{\pi} \tag{44}$$

$$\Delta w^{obs}{}_t - \pi^{obs}{}_t = w_t + \bar{\tau} - w_{t-1} - (\pi_t - \pi_{t-1}) \tag{45}$$

$$\Delta e^{obs}{}_t = e_t + \bar{e} - e_{t-1} \tag{46}$$

$$u^{obs}{}_t = u_t + \bar{u} \tag{47}$$

$$r^{obs}{}_t = 4\,\bar{r} + r_t\,4 \tag{48}$$

$$r^{ann}{}_t = r_t\,4 \tag{49}$$

$$\pi^{ann}{}_t = \pi_t + \pi_{t-1} + AUX\_ENDO\_LAG\_2\_1_{t-1} + AUX\_ENDO\_LAG\_2\_2_{t-1} \tag{50}$$

$$AUX\_ENDO\_LAG\_2\_1_t = \pi_{t-1} \tag{51}$$

$$AUX\_ENDO\_LAG\_2\_2_t = AUX\_ENDO\_LAG\_2\_1_{t-1} \tag{52}$$

$$AUX\_EXO\_LAG\_54\_0_t = \eta_{p_t} \tag{53}$$

$$AUX\_EXO\_LAG\_56\_0_t = \eta_{w_t} \tag{54}$$