$$g_t = \phi + \lambda_t \, \phi \, (Z_{Dt} - 1) \tag{1}$$

$$Z_{Dt} \, g_{t-1} = \phi \, Z_{Dt-1} + V_{Dt-1} \tag{2}$$

$$V_{Dt} = Z_{Dt} \, \overline{\zeta} \, \zeta_t \left(\frac{g_{t-1} \, N_{Dt}}{K_{Dt-1}} \right)^{\eta} \tag{3}$$

$$J_t = (-M_t) + \phi \, \Lambda_{t+1} \, (\lambda_t \, H_{t+1} + (1 - \lambda_t) \, J_{t+1}) \tag{4}$$

$$H_t = \Pi_t + \phi \, \Lambda_{t+1} \, H_{t+1} \tag{5}$$

$$\Pi_t = \frac{1}{\vartheta} \, \frac{1}{\mathcal{M}_t} \, {Y_D^W}_t \tag{6}$$

$$Z_{Dt} \, \zeta_t \, \overline{\zeta} \, \Lambda_{t+1} \, J_{t+1} \, \frac{1}{\left(\frac{K_{Dt-1}}{g_{t-1}} \right)^{\eta}} \, \frac{1}{N_{Dt}^{1-\eta}} = 1 + log \left(f\prime \left(\cdot \right) |_t \right) \, \frac{g_{t-1} \, N_{Dt}}{N_{Dt-1}} + log \left(f \left(\cdot \right) |_t \right) - \Lambda_{t+1} \, log \left(f\prime \left(\cdot \right) |_{t+1} \right) \, \left(\frac{g_t \, N_{Dt+1}}{N_{Dt}} \right)^2 \tag{7}$$

$$\Lambda_{t+1} \, \phi \, \rho_\lambda \, \bar{\lambda} \, (H_{t+1} - J_{t+1}) = M_t^{1-\rho_\lambda} \tag{8}$$

$$\lambda_t = \bar{\lambda} \, M_t^{\rho_\lambda} \tag{9}$$

$$Y_{Dt} = {Y_D^W}_t \tag{10}$$

$${Y_D^W}_t = \left(\frac{K_{Dt-1}}{g_{t-1}} \right)^{\alpha} \, L_t^{1-\alpha} \tag{11}$$

$$Y_{Dt} = C_{Dt} + \left(1 + log \left(g \left(\cdot \right) |_t \right) \right) \, I_{Dt} + N_{Dt} \, \left(1 + log \left(f \left(\cdot \right) |_t \right) \right) + (Z_{Dt} - 1) \, M_t \tag{12}$$

$$\Lambda_t = \frac{\beta \, U_{CDt}}{U_{CDt-1}} \, g_{t-1}^{(-\rho)} \tag{13}$$

$$U_{CDt} = \left(C_{Dt} - \Gamma_{Dt} \, \frac{\chi}{1+\epsilon} \, L_t^{1+\epsilon} \right)^{(-\rho)} + (-\mu_{Dt}) \, \gamma \, \left(\frac{\Gamma_{Dt-1}}{g_{t-1} \, C_{Dt}} \right)^{1-\gamma} \tag{14}$$

$$\mu_{Dt} = \beta \, (1-\gamma) \, g_t^{(-\rho)} \, \mu_{Dt+1} \, \left(\frac{g_t \, C_{Dt+1}}{\Gamma_{Dt}} \right)^{\gamma} + L_t^{1+\epsilon} \, \frac{\chi}{1+\epsilon} \, \left(C_{Dt} - \Gamma_{Dt} \, \frac{\chi}{1+\epsilon} \, L_t^{1+\epsilon} \right)^{(-\rho)} \tag{15}$$

$$\left(C_{Dt} - \Gamma_{Dt} \, \frac{\chi}{1+\epsilon} \, L_t^{1+\epsilon} \right)^{(-\rho)} \, \Gamma_{Dt} \, \chi \, L_t^{\epsilon} \, \frac{1}{U_{CDt}} = (1-\alpha) \, \frac{1}{\mathcal{M}_t} \, \frac{\vartheta - 1}{\vartheta} \, \frac{Y_{Dt}}{L_t} \tag{16}$$

$$\Gamma_{D\,t} = C_{D\,t}^{\gamma}\ \left(\frac{\Gamma_{D\,t-1}}{g_{t-1}}\right)^{1-\gamma} \tag{17}$$

$$K_{D\,t} = I_{D\,t} + \frac{K_{D\,t-1}}{g_{t-1}}\ (1-\delta) \tag{18}$$

$$Q_t = 1 + log\left(g\left(\cdot\right)|_t\right) + \frac{g_{t-1}\, I_{D\,t}}{I_{D\,t-1}}\, log\left(g\prime\left(\cdot\right)|_t\right) - \Lambda_{t+1}\ \left(\frac{g_t\, I_{D\,t+1}}{I_{D\,t}}\right)^2\ log\left(g\prime\left(\cdot\right)|_{t+1}\right) \tag{19}$$

$$Q_t = \Lambda_{t+1}\ \left(\frac{\alpha\, g_t\ (\vartheta-1)\ Y_{D\ t+1}^{W}}{\vartheta\, \mathcal{M}_t\, K_{D\,t}} + (1-\delta)\ Q_{t+1}\right) \tag{20}$$

$$log\left(\zeta_t\right) = \sigma_\zeta\, \epsilon_t^{\chi} + \rho_\zeta\, log\left(\zeta_{t-1}\right) - \rho_{\zeta 2}\, log\left(AUX\_ENDO\_LAG\_20\_1_{t-1}\right) \tag{21}$$

$$\mathcal{S}_{D\,t} = H_t + K_{D\,t}\, Q_t + J_t\ \left(Z_{D\,t} + V_{D\,t} - 1\right) + X_{D\,t} \tag{22}$$

$$X_{D\,t} = g_t\, \Lambda_{t+1}\ \left(J_{t+1}\, V_{D\,t+1} + X_{D\,t+1}\right) \tag{23}$$

$$\mathcal{R}_{D\,t} = N_{D\,t} \tag{24}$$

$$f\left(\cdot\right)|_t = exp\left(\frac{\psi_N}{2}\ \left(\frac{g_{t-1}\, N_{D\,t}}{N_{D\,t-1}} - g^{BGP}\right)^2\right) \tag{25}$$

$$f\prime\left(\cdot\right)|_t = exp\left(\psi_N\ \left(\frac{g_{t-1}\, N_{D\,t}}{N_{D\,t-1}} - g^{BGP}\right)\right) \tag{26}$$

$$g\left(\cdot\right)|_t = exp\left(\frac{\psi_I}{2}\ \left(\frac{g_{t-1}\, I_{D\,t}}{I_{D\,t-1}} - g^{BGP}\right)^2\right) \tag{27}$$

$$g\prime\left(\cdot\right)|_t = exp\left(\psi_I\ \left(\frac{g_{t-1}\, I_{D\,t}}{I_{D\,t-1}} - g^{BGP}\right)\right) \tag{28}$$

$$\pi_t^{1-\omega} = \theta + (1-\theta)\ \pi^{*}{}_t^{1-\omega} \tag{29}$$

$$\pi^{*}{}_t = \pi_t\, \frac{\omega}{\omega-1}\, \frac{x_{1D\,t}}{x_{2D\,t}} \tag{30}$$

$$x_{1D\,t} = Y_{D\,t}\, \frac{1}{\mathcal{M}_t}\, U_{CD\,t} + \beta\, \theta\, g_t^{1-\rho}\, \pi_{t+1}^{\omega}\, x_{1D\,t+1} \tag{31}$$

$$x_{2D\,t} = Y_{D\,t}\, U_{CD\,t} + \beta\, \theta\, g_t^{1-\rho}\, \pi_{t+1}^{\omega-1}\, x_{2D\,t+1} \tag{32}$$

$$1 = \frac{\Lambda_{t+1}\, R_t}{\pi_{t+1}} \tag{33}$$

$$\frac{R_t}{R^{ss}} = \pi_t^{\gamma_\pi}\ \left(\frac{\frac{1}{\mathcal{M}_t}}{\frac{1}{\mathcal{M}^{ss}}}\right)^{\gamma_y} \tag{34}$$

$$AUX\_ENDO\_LAG\_20\_1_t = \zeta_{t-1} \tag{35}$$