$$(1-\theta)\frac{\Lambda_t}{P_t}\exp\left\{\left[\frac{\lambda\sigma_\varepsilon^2+(1-\lambda)\sigma_z^2}{\lambda^2\sigma_\varepsilon^2+(1-\lambda)^2\sigma_z^2+\sigma_v^2}(\lambda\log\in_t+(1-\lambda)\log Z_t+v_t)\right]+\frac{1}{2}\Omega_s\right\}-\Lambda_t\Phi_p\left(\frac{P_t}{P_{t-1}}-1\right)\frac{Y_t}{P_{t-1}}+\xi_t-\beta\Phi_p\left[-\frac{P_{t+1}}{P_t^2}\left(\frac{P_{t+1}}{P_t}-1\right)\Lambda_{t+1}Y_{t+1}\right]=0$$

Since ε_{jt} and z_t are Gaussian, the conditional variance Ω_s will not depend on the observed s_{jt} and will be given by

$$\Omega_s=\mathrm{var}\left[(\varepsilon_{jt}+z_t)\middle|s_{jt}\right]=\mathrm{var}(\varepsilon_{jt}+z_t)-\frac{\left[\mathrm{cov}(\varepsilon_{jt}+z_t,s_{jt})\right]^2}{\mathrm{var}(s_{jt})}$$

$$\mathrm{var}(s_{jt})=\lambda^2\sigma_\varepsilon^2+(1-\lambda)^2\sigma_z^2+\sigma_v^2$$

$$\mathrm{cov}(\varepsilon_{jt}+z_t,s_{jt})=\lambda\sigma_\varepsilon^2+(1-\lambda)\sigma_z^2$$

$$s_{jt}=\lambda\log\in_{jt}+(1-\lambda)\log Z_t+v_{jt}=\lambda\varepsilon_{jt}+(1-\lambda)z_t+v_{jt}$$

$$(1-\theta)\frac{\Lambda_t}{P_t}\exp\left\{\left[A(\lambda\log\in_t+(1-\lambda)\log Z_t+v_t)\right]+\frac{1}{2}\Omega_s\right\}-\Lambda_t\Phi_p\left(\frac{P_t}{P_{t-1}}-1\right)\frac{Y_t}{P_{t-1}}+\xi_t-\beta\Phi_p\left[-\frac{P_{t+1}}{P_t^2}\left(\frac{P_{t+1}}{P_t}-1\right)\Lambda_{t+1}Y_{t+1}\right]=0$$

$$A=\frac{\lambda\sigma_\varepsilon^2+(1-\lambda)\sigma_z^2}{\lambda^2\sigma_\varepsilon^2+(1-\lambda)^2\sigma_z^2+\sigma_v^2}$$

$$(1-\theta)\frac{\Lambda_t}{P_t}\in_t^{A\lambda}Z_t^{A(1-\lambda)}\exp\left\{Av_t+\frac{1}{2}\Omega_s\right\}-\Phi_p\frac{\Lambda_tP_tY_t}{P_{t-1}^2}+\Phi_p\frac{\Lambda_tY_t}{P_{t-1}}+\xi_t+\beta\Phi_p\frac{P_{t+1}^2\Lambda_{t+1}Y_{t+1}}{P_t^3}-\beta\Phi_p\frac{P_{t+1}\Lambda_{t+1}Y_{t+1}}{P_t^2}=0$$

$$\Phi_p\frac{\Lambda_tP_tY_t}{P_{t-1}^2}=\Phi_p\frac{\bar\Lambda e^{\hat\Lambda_t}\bar Pe^{\hat P_t}\bar Ye^{\hat Y_t}}{\bar P^2e^{2\hat P_{t-1}}}=\Phi_p\frac{\bar\Lambda\bar Y}{\bar P}\frac{e^{\hat\Lambda_t}e^{\hat P_t}e^{\hat Y_t}}{e^{2\hat P_{t-1}}}=\Phi_p\frac{\bar\Lambda\bar Y}{\bar P}(1+\hat\Lambda_t)(1+\hat P_t)(1+\hat Y_t)(1-2\hat P_{t-1})=$$

$$=\Phi_p\frac{\bar\Lambda\bar Y}{\bar P}\left[1+\hat\Lambda_t+\hat P_t+\overset{\simeq 0}{\hat\Lambda_t\hat P_t}\right]\left[1+\hat Y_t-2\hat P_{t-1}-\overbrace{2\hat Y_t\hat P_{t-1}}^{\simeq 0}\right]=$$

$$=\Phi_p\frac{\bar\Lambda\bar Y}{\bar P}\left\{1+\hat Y_t-2\hat P_{t-1}+\hat\Lambda_t+\overset{\simeq 0}{\hat\Lambda_t\hat Y_t}-2\overset{\simeq 0}{\hat\Lambda_t\hat P_{t-1}}+\hat P_t+\overset{\simeq 0}{\hat P_t\hat Y_t}-2\overset{\simeq 0}{\hat P_t\hat P_{t-1}}\right\}$$

$$=\Phi_p\frac{\bar\Lambda\bar Y}{\bar P}\left(1+\hat\Lambda_t+\hat Y_t+\hat P_t-2\hat P_{t-1}\right)$$