$$(1-\frac{1}{\theta})\hat{y}_t + \frac{\frac{1}{\theta}\lambda\sigma_\varepsilon^2 + \frac{1}{\theta}(1-\lambda)\sigma_z^2}{\lambda^2\sigma_\varepsilon^2 + (1-\lambda)^2\sigma_z^2 + \sigma_v^2}\left(\lambda\hat{\varepsilon}_t + (1-\lambda)\hat{z}_t + v_t\right) = \hat{w}_t + \hat{n}_t$$

$$(1-\frac{1}{\theta})\hat{y}_t + A\left(\lambda\hat{\varepsilon}_t + (1-\lambda)\hat{z}_t + v_t\right) = \hat{w}_t + \hat{n}_t$$

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

$$\lambda \equiv \frac{\frac{\sigma_\varepsilon^2}{\sigma_\varepsilon^2 + \sigma_h^2}}{\frac{\sigma_\varepsilon^2}{\sigma_\varepsilon^2 + \sigma_h^2} + (1-\theta\gamma)} \in \left(0, \frac{1}{2}\right)$$