Ex 1: $k_{t+1} = (1-\delta) k_t + \underline{I_t} = F(k_t, I_t)$

LL: $\hat{k}_{t+1} = \dfrac{F_k(k, I)\,k}{F(k, I)} \hat{k}_t + \dfrac{F_I(k, I)\,\underline{I}}{F(k, I)} \hat{i}_t$

$= \dfrac{(1-\delta)\,k}{k} \hat{k}_t + \dfrac{1 \times \delta k}{k} \hat{i}_t$

$= (1-\delta)\hat{k}_t + \delta \hat{i}_t$

Ex 2: $Y_t = C_t + I_t = F(C_t, I_t)$

LL: $\hat{y}_t = \dfrac{F_C(C, I)\, C}{F(C, I)} \hat{c}_t + \dfrac{F_I(C, I)\, I}{F(C, I)} \hat{\imath}_t$

$= \dfrac{C}{Y} \hat{c}_t + \dfrac{I}{Y} \hat{\imath}_t$

$$\underbrace{\frac{1}{C_t}}_{G(C_t)} = \underbrace{\beta E_t\left[\left(R^r_{t+1} + (1-\delta)\right)\frac{1}{C_{t+1}}\right]}_{H(R^r_{t+1},\, C_{t+1})}$$

RHS: $$\frac{G_c(C)\,C}{G(C)}\hat{c}_{t+1} = \frac{-\frac{1}{C^{\cancel{2}}}\cancel{C}}{\frac{1}{C}}\hat{c}_t = -\hat{c}_t$$

LHS: $$\frac{H_R(R^r, C)\,R^r}{H(R^r, C)}E_t\hat{r}^r_{t+1} + \frac{H_c(R^r, C)\,C}{H(R^r, C)}E_t\hat{c}_{t+1}$$

$$= \frac{\beta\frac{1}{C}R^r}{\frac{1}{C}}E_t\hat{r}_{t+1} + \frac{\beta\left(R^r + (1-\delta)\right)\left(-\frac{1}{\cancel{C^{2}}}\right)\cancel{C}}{\cancel{\frac{1}{C}}}E_t\hat{c}_{t+1}$$

$$= \beta R^r E_t\hat{r}_{t+1} - E\hat{c}_{t+1}$$

$$\Rightarrow \quad \hat{c}_{t+1} = -\beta R^r E_t\hat{r}_{t+1} + E_t\hat{c}_{t+1}$$