IT Spillovers in TFP

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Household

$$\max_{C_t,\ H_t,\ K_t^C,\ K_t^I} \sum_{j=0}^{\infty} \beta^j \left[\log C_t - \frac{1}{2} H_t^2 \right]$$

subject to

$$Y_t^C = C_t + I_t^C \quad \text{and} \quad Y_t^I = I_t^C;$$

$$K_{t+1}^C = (1-\delta^C)K_t^C + I_t^C \quad \text{and} \quad K_{t+1}^I = (1-\delta^I)K_t^I + I_t^I;$$

$$C_t + K_{t+1}^C + P_t K_{t+1}^I = Y_t^C + P_t Y_t^I + (1-\delta^C)K_t^C + (1-\delta^I)P_t K_t^I$$

Production Function

$$Y_t^C = S_t^C \; N_t \; (K_t^I)^\gamma \quad (H_{1,t})^{1-a-b} \quad (K_{1,t}^C)^a \quad (K_{1,t}^I)^b$$
$$Y_t^I = S_t^I \; N_t \; (K_t^I)^\gamma \quad (H_{2,t})^{1-a-b} \quad (K_{2,t}^C)^a \quad (K_{2,t}^I)^b$$

where

$$Y_t^C = C_t + I_t^C \;\text{ and }\; Y_t^I = I_t^C;$$
$$K_{t+1}^C = (1-\delta^C)K_t^C + I_t^C \;\text{ and }\; K_{t+1}^I = (1-\delta^I)K_t^I + I_t^I;$$

and

$$H_{1,t} + H_{2,t} = H_t,$$
$$K_{1,t}^C + K_{2,t}^C = K_t^C,$$
$$K_{1,t}^I + K_{2,t}^I = K_t^I$$